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A.M.A. SESSION — St. Louis — MAY 15-19, 1939

Symposium on Appendicitis

The *Symposium* in the April Number of the *Surgical Clinics of North America* (from New York) deals with the important subject of *Appendicitis.* Not alone with the latest technic of appendectomy and the general care and management of the appendicitis patient, but also the specific problems of differential diagnosis and the prevention and management of complications. Yes, this *23-clinic Symposium* is indeed a presentation of *today's methods* and their application. Practitioners as well as Surgeons will consult it time and time again.

Here are a few of the 23 clinics: Differential Diagnosis in Acute Appendicitis; Acute Mesenteric Lymphadenitis Simulating Acute Appendicitis; Reflex Gastric Disturbances; Appendicitis in Children; Preoperative and Postoperative Care; Treatment of Emergencies arising during Spinal Anesthesia; Management of Acute Diffuse Peritonitis Following Acute Appendicitis; Alcohol Intravenously in Severe Peritonitis; High Enterostomy for Ileus Complicating Appendicitis; Indications for Intraperitoneal Drainage in Acute Appendicitis, etc., etc.

And as if this 23-clinic Symposium were not enough, there are *9 other practical clinics* in this April Number. For instance: Diagnosis and Treatment of Sciatica; Surgical Repair of Unusual Dermatological Conditions; Technic of Aspiration Biopsy of Tumors; Single Causes and Cures of Sterility in Women; Resuscitation of the Newborn, and others.

These bimonthly books of everyday surgery are truly *postgraduate teaching*—for General Practitioners as well as for Surgeons.

See Complete Contents in SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

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THE CAUSE OF CHILLS FOLLOWING INTRAVENOUS THERAPY

CHARLES M. NELSON, M.D.

RICHMOND, VA.

In the field of therapy there are at present no more valuable agents than those administered intravenously. Physiologic solution of sodium chloride, dextrose, arsphenamine and countless others are given daily in every hospital in the country. From the time these agents were first introduced, reactions consisting usually of fever and chills have followed their use. The cause of these reactions has been sought assiduously and every possible factor has been suspected. Extensive experiments have been carried out which resulted in the discovery of the cause and the elimination—in the laboratory—of these reactions. These results, unfortunately, have uniformly been published in journals dealing with the preclinical phases of medicine and have escaped the attention of the majority of those using intravenous medications in their daily practice. I believe that these results should be brought to the attention of the therapist, and accordingly I plan to summarize the results of others and to add further proof of a clinical nature to what is already proved in the laboratory.

The factors most generally considered to be the cause of reactions are (1) extremes in the temperature of the solution, (2) the amount of solution, (3) the rate of flow, (4) the concentration of the solution, (5) the glass and tubing used, (6) the p_H and (7) the water used in the preparation of the solution. Countless other possibilities have been mentioned, but those cited are held to be the usual offenders.

The first five of these factors were eliminated as a cause of chills in the following experiment: During the three and one-half month period from Sept. 15, 1935, to Jan. 1, 1936, a record was kept of every venoclysis given in the Hospital Division of the Medical College of Virginia, the record including the temperature of the solution taken by a thermometer at the wrist through which the solution flowed, the amount of solution, the rate of flow, the gage of the needle, the concentration of the solution, and the presence or absence of chill. The tubing used was pure gum rubber prepared by soaking in 4 per cent sodium hydroxide for six hours, then scrubbing and rinsing with green soap and water which was, in addition, passed through the tubing by syringes. The tubing was then boiled for ten minutes and tap water was run through it for twenty-four hours. Following this, distilled water was run through it three times and finally it was allowed to dry. The flasks used were hard glass thoroughly washed prior to autoclaving.

During this period a total of 680 venoclyses were given with eighty-two chills occurring either during or immediately after administration of the fluid, an incidence of approximately 12 per cent. The results are given in the accompanying table.

From these figures it will be seen that our percentage of chills was reduced from 28 to less than 3 during the period under consideration. Yet no one of the factors mentioned showed a consistent change. The method of preparation of the flasks and tubing had not been changed. Physiologic solution of sodium chloride or 5 per cent, 10 per cent or 15 per cent dextrose in either distilled water or physiologic solution of sodium chloride was still being used. The rates of flow still varied from 250 to 3,000 cc. an hour, the needles ranged from gage 18 to 22 and the temperature varied from 85 to 122 F. Tremendous amounts of fluids given rapidly would produce no chill, yet the following day, under the same conditions and with the same type of fluid, a small amount would cause an intense reaction.

Since there was no consistent change in any of these factors, although the percentage of chills decreased from 28 to less than 3 during this period, and since a careful check of the record of each chill revealed that no one factor or combination of factors was uniformly present when a chill occurred, it appears that they can be ruled out. This does not eliminate entirely the possibility that the glass and tubing used were the cause of occasional chills, since our records did not show which venoclysis set was employed when chills occurred, but it does rule out the possibility that they were the cause of the majority of the reactions.

With regard to the p_H, experiments have been performed on rabbits in which the p_H was varied from 4.6 to 8.0 without any reaction. This work was first done in 1923 by Seibert [1] and was repeated in 1934 by Banks.[2] It had been previously stated by Williams and Swett [3] that saline and dextrose solutions with a p_H of less than 6.5 produced chill and prostration. Our work neither refutes nor confirms this, since the p_H of our solutions was not determined. However, if we accept the rabbit as a suitable experimental animal, there can be no doubt from the work cited that the p_H is not a causative factor. That the rabbit is a suitable animal was shown both by Seibert and by Banks. The rabbit's normal range of temperature is known and also the usual fluctuations caused by environmental changes or by handling. Anaphylactic reactions are difficult to

This work would have been impossible without the active cooperation received from the administrative department of the hospital group of the Medical College of Virginia and from the Department of Physiology, and especially from Mr. George Snyder of the Department of Bacteriology.

1. Seibert, Florence B.: Am. J. Physiol. **67**: 90-104 (Dec.) 1923.
2. Banks, H. M.: Am. J. Clin. Path. **4**: 260-291 (May) 1934.
3. Williams, J. R., and Swett, Madeleine: Hydrogen Ion Concentration Studies, J. A. M. A. **78**: 1024 (April 8) 1922.

produce. In addition, the reaction of chill-producing solutions is constant, consisting of a marked abrupt rise in temperature which usually persists from three to four hours. Unfortunately chills are not produced; but solutions that cause chills in human beings give this febrile reaction, and solutions giving this febrile reaction produce chills in human beings.

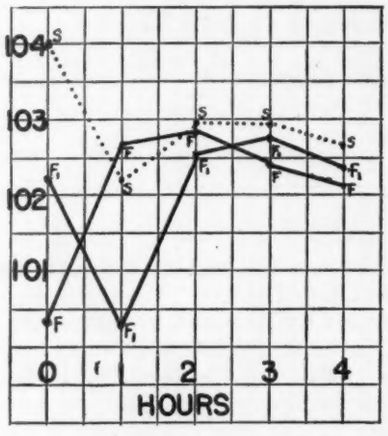

Chart 1.—This is self explanatory. It shows merely that the solutions used are nonreactive and that old saline solution is nonreactive if the proper precautions are taken. It also shows the normal temperature range of the rabbit. *F* and F_1 indicate fresh physiologic solution of sodium chloride; *S* indicates the solution 5 days old, autoclaved one hour after distillation.

In addition to eliminating the possibility of the p_H as a factor, Seibert at the same time showed that hemolysis, the absorption of atmospheric gases and the preponderance of various ions—potassium, sodium and the like—could be of no importance; the reader is referred to her articles for complete details.

This narrows the elimination down to the water used in preparing the solutions. During the period in which our percentage of chills was so abruptly reduced, only one factor of all those mentioned was changed. A new still was installed the latter part of October. As the table shows, two weeks later our percentage of chills was 3.3. It can be reasonably inferred that the majority of the chills were caused by distilled water either improperly distilled or contaminated after distillation.

Three and One-Half Month Record of Venoclyses Given in the Hospital Division of the Medical College of Virginia

Date	Venoclyses	Chills	Per Cent
Sept. 16-30	128	36	28.0
Oct. 1-15	121	19	15.0
Oct. 16-31	77	12	16.0
Nov. 1-15	86	8	9.0
Nov. 16-30	119	4	3.3
Dec. 1-15	71	1	1.4
Dec. 16-31	78	2	2.6

In an effort to determine the time of contamination, a series of 120 hypodermoclyses was run. Hypodermoclyses were chosen for several reasons; the type of reaction was familiar, the dextrose factor could be eliminated, reactions were more constant and less awe inspiring than with venoclyses, and the experiments could be readily controlled. Physiologic solution of sodium chloride was used in each instance and two different saline solutions were used; the first being the saline solution ordinarily sent down from the operating room and the second being a special saline solution made from water taken directly from the still, carried to the operating room, filtered, and immediately autoclaved. The method of preparing the ordinary saline solution was as follows: To water taken directly from the still sufficient chemically pure sodium chloride was added to make a physiologic solution. This solution was taken to the operating room and stored in a 5 gallon bottle from which, as needed, it was decanted, filtered into 1,500 cc. flasks and autoclaved. The bottle usually had to be replenished at the end of from forty-eight to seventy-two hours.

In this experiment 750 cc. of each solution, the special and the ordinary, was given on the lateral aspect of each thigh, the solutions being run in through different sets and with different tubing. The sets were taken at random from the hospital supply and consisted of one 1,000 cc. flask, a length of rubber tubing, an adapter and a needle. No effort was made to keep separate those used for the special saline solution. Twenty-four hours after the hypodermoclysis was administered the thighs were compared both subjectively and objectively. In 93 per cent of the cases the thigh receiving the ordinary saline solution showed a local reaction consisting of tenderness, redness, swelling and local heat, while the opposite thigh showed no reaction other than an occasional slight tenderness. The reactions suggested a severe, acute, superficial infection but in no case was there any formation of pus or any true cellulitis.

From this experiment it becomes apparent that saline solution freshly distilled and autoclaved is nonreactive, while a reactive factor develops in that allowed to stand without autoclaving. That it is not aging of the saline solution alone which produces the factor was proved by the special saline solution being allowed to stand for as long as five days after autoclaving and then being administered without causing a reaction. Supplementary proof is also obtained that the sets are not the cause of reaction, since we had no reactions with the special saline solution although the sets were chosen at random from the hospital supply.

Since immediate autoclaving prevents reactions, it follows that growth of some type must be occurring in and contaminating the ordinary saline solution. Accordingly, cultures were taken from the bottle from the operating room and the following organisms were found: Escherichia coli communior, Bacillus alcaligenes faecalis and Monilia albicans. We had previously considered algae as a possible contaminant, but these were ruled out by the discovery that water from the storage tank of the still was reactive while that taken directly from the still was not. No sunlight, necessary to the growth of algae, reached the storage tank.

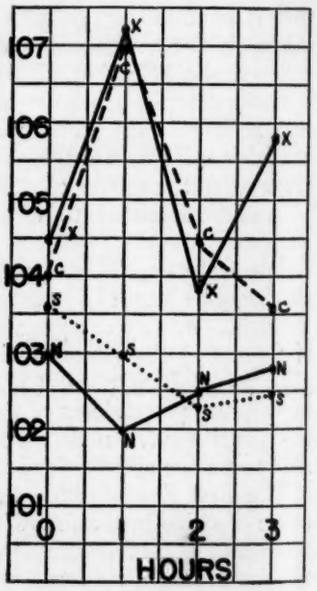

Chart 2.—The result of seeding distilled water with reactive organisms and allowing growth to occur at room temperature for thirty-six hours before autoclaving. One animal is included in which no injection was made, to show the curve produced by handling alone. *X* indicates B. alcaligenes faecalis; *C*, Escherichia communior; *S*, physiologic solution of sodium chloride, and *N*, no injection.

It was thought probable that these organisms or their growth products were the cause of the chills and, in order to prove this, experiments were performed on rabbits. The following technic was used: Hundred cc. flasks were carefully washed with tap water, rinsed with freshly distilled water, partially filled with water taken directly from the still, taken to the operating room and autoclaved immediately. These flasks were then seeded with the organisms by removing a loopful of growth from the

agar slant and washing it in the flask. Broth cultures could not be used because of the possibility that the broth itself contained a reactive factor. The flasks were then recapped and allowed to stand at room temperature for periods varying from one to seven days, when they were again autoclaved. Not all the flasks were seeded, some being used for controls. Sufficient chemically pure sodium chloride was added to 10 cc. from each flask to make a physiologic solution and these solutions were injected into the ear veins of rabbits, separate syringes and needles being used for each solution. The temperature of the rabbits was taken at hourly intervals and graphs were made from these readings. A few of the graphs are shown here.

From these graphs and from others not included here it can be seen that on intravenous administration B. alcaligenes faecalis always produces fever and that Monilia albicans and uncontaminated saline solution never produce fever. It is also shown that the same contaminated water which produces fever in rabbits causes chills and fever in human beings.

Escherichia coli communior was included in only one study, because it was shown in 1911 by Hort and Penfold [4] that this organism —B. coli at that time— when injected into rabbits produces a febrile reaction. In their paper, one of the earliest on febrile reactions, they also include as reactors Bacillus typhosus, B. pyocyaneus, B. subtilis, Brucella melitensis, Bacillus pestis, Micrococcus catarrhalis, Staphylococcus albus and citreus, B. influenzae, the gonococcus, Corynebacterium acnes, the cholera vibrio and mallein. As nonreactors they list Staphylococcus aureus, pneumococci, streptococci, B. diphtheriae, B. anthracis, B. tetanus and tubercle bacilli. Seibert [5] in her later work added many other organisms to both groups. She divided them into four chief divisions: those which cause no reaction, those which cause only a slight elevation of temperature, those which cause a marked elevation of temperature —with this group she produced chills in human beings —and those which cause immediate prostration and death. The last group is quite possibly the cause of the terrific reactions which occasionally follow venoclyses and which are referred to in the literature as "speed shock." [6] To the already imposing list of reactors Banks added Pseudomonas scissa and Pseudomonas ureae, chromogenic bacteria common to most water supplies. Banks goes so far as to claim that the Pseudomonas organisms are the only producers of reactions as seen in venoclyses, basing his conclusions on the type of temperature curve seen in rabbits. He states that both pathogenic and other nonpathogenic organisms produce reactions, but they are delayed in appearance and with them the animal is much more prostrated than with the abrupt rise and fall of temperature seen in reactions produced by water seeded with Pseudomonas organisms. It seems to me that there is no necessity to limit these reactions to the activity of one group of organisms, since in our hands B. alcaligenes faecalis produces almost identical temperature graphs with those shown in Banks's paper and, in addition, I have shown that this organism will cause chills in human beings. Any organism which is capable of elaborating a pyrogenic substance which thrives at room temperature and which is a common contaminant may be the offender. No organism will ever be the offender if the distilled water is taken directly from the still— most storage tanks are contaminated by backflow of air when the still cools— and autoclaved immediately. Nor will chills occur except in isolated instances, and these not the result of venoclyses.

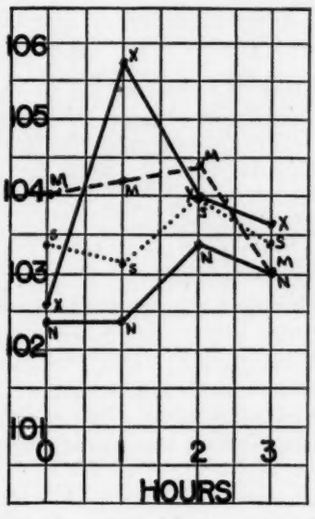

Chart 3.—Showing that a thirty-six hour culture of Monilia albicans is nonreactive. *X* indicates B. alcaligenes faecalis; *M*, Monilia albicans; *S*, physiologic solution of sodium chloride, and *N*, no injection.

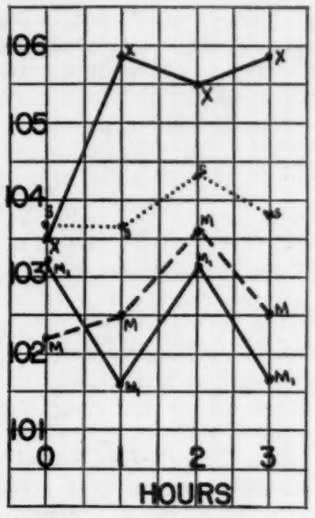

Chart 4.—Showing that a seven day culture of Monilia albicans in which the growth was so profuse that the water was turbid is also nonreactive. *X* indicates B. alcaligenes faecalis; *M* and M_1, Monilia albicans, and *S*, physiologic solution of sodium chloride.

It may be well at this point to summarize the known characteristics of the reaction-producing substance.

1. The substance is a product of bacterial growth.[7] It is not due entirely to the bacterial bodies themselves, since filtration through a Berkefeld filter does not render a reactive water nonreactive.[8]

2. It is heat labile. Boiling for six hours will produce a nonreactive water. Autoclaving, if sufficiently prolonged (from three to four hours) will also destroy the factor. The usual period of sterilization however tends to increase its activity.[8]

3. It is water soluble. A nonreactive solution placed in a dry sterile flask which has contained pyrogenic water and which has not been thoroughly washed will become reactive.[1] To digress for a moment, it is for this reason that the tubing and flasks may occasionally

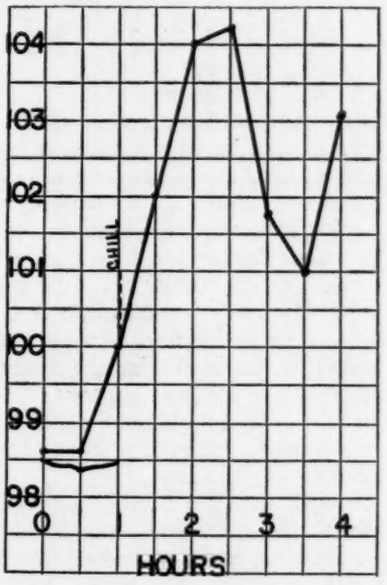

Chart 5.—The temperature of a patient with dementia paralytica who was given a solution of 5 per cent dextrose in distilled water. The dextrose was the 50 cc. ampule of 50 per cent dextrose offered for sale by almost all drug houses. The water was freshly distilled and autoclaved immediately, seeded with B. alcaligenes faecalis and allowed to stand at room temperature for twenty-four hours, when it was again autoclaved. Five hundred cc. was used.

4. Hort, E. C., and Penfold, W. J.: J. Hyg. **12**: 361, 1912.
5. Seibert, Florence B.: Am. J. Physiol. **71**: 621-651 (Feb.) 1924.
6. Milbert, A. H.: Am. J. Surg. **26**: 479-485 (Dec.) 1934.
7. Hort, E. C., and Penfold, W. J.: Proc. Roy. Soc. Med. (Path. Sec.) **5**: 131, 1912. Seibert.[1] Banks.[2]
8. Seibert.[1] Banks.[2]

be the cause of reactions, the pyrogenic substance being picked up as the solution passes through the set. If the tubing is prepared according to the method outlined earlier in this paper and any nonreactive water, distilled or otherwise, is passed through it three times prior to immediate autoclaving, this tubing will be nonreactive. Similar care must be exercised in the preparation of the flasks, funnels and storage bottles.

4. The substance is particulate in nature. It is held back by the pores of a 200 second Zsigmondy ultrafilter and passes through those of a 42 second filter.[9]

SUMMARY

Certain factors commonly thought to be influential in producing reactions to venoclysis are eliminated.

Another organism, B. alcaligenes faecalis, is added to the list of those known to cause reactions. At the same time Monilia albicans is eliminated.

Reactions to hypodermoclysis have value as a simple means of determining the presence or absence of pyrogen in the ordinary saline solution used in hospitals.

Further proof is added in support of the already proved statement that reactions to venoclysis are the result of bacterial contamination of the distilled water used in the preparation of the solutions.

805 Professional Building.

THE FATE OF CHILDREN WITH PRIMARY TUBERCULOSIS

PHILIP T. Y. CH'IU, M.D.
PEIPING, CHINA
J. A. MYERS, M.D.
AND
C. A. STEWART, M.D.
MINNEAPOLIS

It was unfortunate that the discovery of the tubercle bacillus occurred during an era in which the causative organisms of so many other diseases and, even more important, so many preventive measures came to light. Thus tuberculosis, as soon as it was found to be due to a bacillus, was relegated to the general category of "infectious diseases." For many of the other infectious diseases, a vaccine or an antitoxin was found within a few years after the causative organism was discovered. Hence the unceasing effort toward finding an antidote or an immunizing substance overwhelmed the minds of the medical scientists from the tuberculin of Koch in 1890 to Calmette's BCG. Tubercle bacilli in various forms, types of products and amounts were tried with varying results.

Naegeli in 1900 found that the majority of people have traces of tuberculous infection in their bodies. Von Behring in 1903 showed that tuberculous infection in childhood is followed by a recrudescence of lesions in adult life. In 1907, with a tuberculin test that was an improvement on Koch's, Pirquet found that tuberculous infection is very prevalent. Subsequent work by other investigators showed that the higher the incidence of infection the higher also are the morbidity and mortality rates for the community, which fact in itself shows that an infection not only is not a protection from tuberculous disease but is a liability.

Much effort and work have been devoted to proving the immunizing property of the tubercle bacillus. It seems true that this bacillus does produce a certain amount of immunity. It also seems indubitable that primary infection, dormant for a time, can and does give rise to the so-called reinfection type of lesion in later life. Thus Rich and McCordock showed that tuberculous meningitis in the majority of cases originated from old foci of infection in or adjacent to the central nervous system. In the prevention of tuberculosis the question, then, is Which of the two factors is more preponderant, the immunity that a tuberculous infection produces or the subsequent hazard from such an infection?

One proposition is universally accepted: Without tubercle bacilli there can be no tuberculosis.

The history of the eradication of bovine tuberculosis is instructive. In one country all obviously diseased cattle were condemned; in another all infected cattle, those with a positive reaction to tuberculin were condemned. In the former country the number of tuberculous cattle was not appreciably reduced in ten years, while in the latter it was reduced to one tenth of the original figure.

This communication deals with a ten year follow-up of 446 children with positive reactions to tuberculin and 772 children with negative reactions. These children are from those observed in the first eight years (1921-1928) at the Lymanhurst Health Center, of

TABLE 1.—*Age Distribution*

Age, Years	Positive Reactors	Negative Reactors
0-1	9	36
1	14	32
2	26	57
3	37	61
4	44	61
5	35	59
6	62	83
7	56	84
8	46	75
9	26	47
10	23	52
11	18	44
12	17	22
13	13	23
14	14	16
15	7	15
16	5	3
17	2	1
18	0	1
19	2	0

	Total Years	Total Children	Average Age
Positive reactors	3,122	446	7
Negative reactors	5,094	772	6.6

TABLE 2.—*Length of Follow-Up*

Years of Follow-Up	Positive Reactors	Negative Reactors
0-1	1	..
1	3	..
2	2	..
3	2	..
4	1	..
5	1	..
6	3	..
7	1	..
8	3	..
9	6	4
10	146	344
11	94	252
12	68	95
13	62	36
14	30	24
15	18	14
16	4	3
17	1	..

	Total Length of Follow-Up, Years	Total Number of Children	Average Length of Follow-Up, Years
Positive reactors	5,024	446	11.3
Negative reactors	8,450	772	10.95

9. Co Tui; McCluskey, K. L.; Schrift, M. H., and Yates, A. L.: Proc. Soc. Exper. Biol. & Med. **35**: 297-300 (Nov.) 1936.

From the Department of Hygiene and Public Health, Union Medical College, Peiping, China, and the Lymanhurst Health Center, Minneapolis.

whom the total number was just under 6,000. No selection was made. If a patient was followed up for ten years or more he was included. Naturally those in whom tuberculosis developed at any time during the survey were included. Those who came with well developed tuberculosis, in some of whom the condition was proved by later examinations, were excluded; there were twenty-six of these. The majority of the children were either suspected of having tuberculosis or had been in contact with tuberculous patients, living or dead. In most cases the tuberculous patient was removed from the home as soon as was feasible after he was recognized as such. The sanatorium facilities are good in the community. This does not necessarily mean, however, that the contact was severed, as many of the sanatoriums allow their patients out for short intervals and all of them allow visitors over 14 years of age without giving them special care. Some patients refused to go to a sanatorium or remained there for only a short period. The exact amount of exposure is impossible to estimate, but the general impression is that there is no material difference between the two groups.

TABLE 3.—*Results of Survey for the Positive Reactors* *

	Primary Lesions						Reinfection Lesions				
									Patient Died		
	Lesion Improved or Disappeared	No Change	Calcification in Hila	Ghon's Lesion	Fibrosis	Pleural Change	Pulmonary	Extra-pulmonary	Pulmonary	Extra-pulmonary	Total
Normal	..	157	24	34	1	6	14	2	3	1	242
Primary lesion	2	..	..	25	8	..	3	..	1	1	40
Hilar changes	9	14	16	10	..	..	6	..	7	3	65
Ghon's lesion	..	61	..	..	..	..	13	1	1	2	78
Fibrosis	..	4	..	..	..	..	2	..	..	..	6
Pleural effusion	..	..	..	1	..	..	3	..	2	..	6
Pleural changes	..	4	..	3	..	..	1	..	1	..	9
Total	11	240	40	73	9	6	42	3	15	7	446

* Two patients with pleural effusion, one with Ghon's lesion and one with "marked calcification" had negative Pirquet reactions at first, but as their reactions soon became positive and they had such definite x-ray evidence it is considered justifiable to include them in the group with initial positive reactions.

All the tuberculin tests were done by the Pirquet technic except the follow-up tests done since 1930. When a test was recorded as "slightly positive" or the wheal described as one-sixteenth or one thirty-second inch in diameter it was judged by the results of subsequent tests. Early and subsequent roentgenograms were likewise correlated before a definite diagnosis was made.

The age distribution of the children is shown in table 1.

The positive reactors were regularly followed up; for most of them roentgenograms were taken at intervals of six months to a year and, when clinical tuberculosis was suspected, every one or two months. Of the 772 negative reactors 412 were located in a survey by the public health nurses, who saw the child if possible or else obtained information from such reliable persons as the parents, the family physician or the school teacher. The remaining 360 children were examined in the center by tuberculin testing or roentgenograms or both. The length of follow-up is shown in table 2.

The twenty-three positive reactors followed up less than ten years are those in whom the disease developed; of these twenty-one have died and two have been institutionalized or have disappeared. The four negative reactors are in sanatoriums.

COMMENT

It is evident from the figures in the tables that the infected children had roughly nine times the chance of getting clinical tuberculosis within ten years as did the originally noninfected children. With 15 per cent of the children who reacted positively to the tuberculin test and had no other clinical evidence of disease falling ill within approximately the next ten years, it is obvious that a tuberculin reaction in a child is of far more significance than was formerly believed. If the morbidity and mortality rates continue for these children throughout life as they have begun, clinical tuberculosis will be as frequent among them as tertiary syphilis among persons with positive Wassermann reactions. This would seem to be sufficient evidence to dispel any great enthusiasm for immunity produced by the primary tuberculosis complex. Indeed, by the old criteria these are the persons who should have been immunized by reason of infections in childhood. One might maintain that the remaining 85 per cent have been immunized, but any argument in this direction at present would be nothing more than speculation; only time will tell, and since no such observations have previously been made it would be futile to venture an opinion. Suffice it to say that 15 per cent is a large toll to be exacted in so short a time.

TABLE 4.—*Results of Survey for Negative Reactors* *

	First Examination			Year of Last Negative Reaction	Year of First Positive Reaction	Year Lesion Was Discovered	Extra-pulmonary Lesion	Pulmonary Lesion	Year Last Seen
Case Number	Year	Age	Roentgenogram						
1	1922	12	Normal	?	?	1929	..	..	1934†
2	1922	4	Normal	?	1926	1927	+	..	1934
3	1922	13	None	1924	?	1932	..	+	1932
4	1922	11	None	?	?	1934	..	+	1934
5	1922	12	Normal	1924	?	1937	..	+	1934
6	1923	7	Normal	?	?	1933	..	+	1933
7	1923	13	Normal	?	?	1934	..	+	1934
8	1924	4	Normal	?	1932	1936	..	+	1938
9	1925	2	Normal	1931	?	1937	..	+	1937
10	1925	7	Normal	?	?	1934	..	+	1934
11	1925	8	Normal	?	1929	1934	..	+	1935
12	1928	9	Normal	?	1933	1934	..	+	1937
13	1928	9	Normal	?	1934	1936	..	+	1937
Total							1	11	

* Most of the patients were institutionalized when it was discovered that they had the disease. Patient 8 was given pneumothorax treatment.
† Died.

TABLE 5.—*Summary of Survey*

	Total Number of Cases	Reinfection Type of Disease					
				Patient Died			
		Pulmonary	Extra-pulmonary	Pulmonary	Extra-pulmonary	Total	Percentage
Positive reactors	446	42	3	15	7	67	15.02
Negative reactors	772	11	1	1	0	13	1.68

Another useful fact obtained from these observations is that clinical pulmonary tuberculosis rarely appears until adult life. The average age at which these persons were first found to have the primary tuberculosis complex, as manifested by the reaction to tuberculin, was 7 years, but the average age at which they were found to have clinical tuberculosis was 18.9 years. Treatment of children with the primary complex has not been found to afford any more protection against

the clinical type of tuberculosis in adult life than similar treatment would be expected to provide against tertiary syphilis years later for persons with primary syphilis.

As there is no method of destroying tubercle bacilli once foci are set up in the human body, no method of artificial immunization has proved effective, and since years or decades after the initial attack lesions may become communicable, one is forced to use a method of control based on prevention of the initial infection. After all, this is fundamental.

SUMMARY

Four hundred and forty-six children with positive reactions to tuberculin but without clinical pulmonary lesions and 772 children with negative reactions were followed up for ten years. The average age at the first examination for the former was 7 years and for the latter 6.6 years. The average number of years of follow-up for the former was 11.3 and for the latter 10.95. At the end of the follow-up period it was found that sixty-seven of the positive reactors (15.02 per cent) were sick with the reinfection type of disease, while of the negative reactors only thirteen (1.68 per cent) were sick. Thus there were nine cases of tuberculosis in the positive reactors to one in the negative reactors. The ratio between the mortality for the positive reactors and that for negative reactors is 38 to 1.

VITAMIN A DEFICIENCY IN NORMAL AND TUBERCULOUS PERSONS

AS INDICATED BY THE BIOPHOTOMETER

HORACE R. GETZ, M.D.
PHILADELPHIA

GEORGE B. HILDEBRAND, M.S.
AND
MILTON FINN, M.D.
MADISON, WIS.

Löhr's [1] investigations of the wound-healing properties of cod liver oil have stimulated many clinical studies. Of special interest is the work of Banyai,[2] who successfully treated lupus with topical applications of cod liver oil. In our laboratory the healing effect of cod liver oil applied topically to experimental tuberculous ulcers of the skin of guinea pigs has been demonstrated, and similar favorable results with certain fractions, obtained in the attempt to isolate the active substance, have been reported by Getz.[3] Since the fractions most active in the healing of tuberculous lesions are those containing the greatest amounts of vitamin A, the queries arise Are tuberculous individuals deficient in vitamin A? Will tuberculous human beings respond favorably to increased amounts of vitamin A? Are "normal" persons deficient in vitamin A? To answer these questions, the study here reported was conceived.

The work of Jeans, Blanchard and Zentmire [4] and later that of Jeghers [5] suggested the biophotometer [6] as a satisfactory instrument for the measurement of vitamin A deficiency, although Palmer and Blumberg [7] have disputed its value. Our study of several hundred normal persons was done preliminary to testing tuberculous subjects to note any changes when the vitamin A deficient persons were placed on an adequate vitamin A intake and to obtain a basis for comparison.

METHOD

The technic used was similar to that of Jeans.[4] In all cases the subject was placed in a dark room and allowed to remain ten minutes with the eyes closed before beginning the test. After a reading of the minimum light threshold had been taken, the bright light was turned on for three minutes. The next reading was taken as near as possible to twenty seconds after the bright light was shut off. It was almost never taken as much as thirty seconds after the bright light was extinguished; if so, the time of the reading was recorded. In taking the reading, the rheostat was turned so that the test light was dimmer than that which the subject could see. Then it was turned back slowly to the end point, the point where the center dot in the quincunx was just visible. This technic was rigidly followed throughout the work. Both the reading after the bright light and the curve of regeneration of the visual purple made with the two subsequent readings were used to adjudge the status of the subject. The pathologically deficient group (as defined by Jeans) included those who had a minimum light threshold after the bright light above 1 millifootcandle and subsequent readings that were correspondingly high. The normal group included those who similarly had a minimum light threshold less than 0.6 millifootcandle and the lowest subsequent readings. The group classed as showing borderline deficiency gave readings between those obtained for the normal and the pathologically deficient group.

BIOPHOTOMETRIC RESULTS WITH NORMAL PERSONS

Of the 500 healthy persons tested, 300 were used as controls for comparison with tuberculous patients; 229 were medical students from all four classes and seventy-one were home economics juniors. The rest of the 500 were deemed unsuitable as a control group, since they had requested the test because of a suspected deficiency. The data for the control groups are presented in table 1.

A history was taken of each medical student before the test was made, and the significant data are presented in tables 2 and 3.

From the Department of Medical Bacteriology, University of Wisconsin Medical School.

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Part of this work was submitted as a thesis for the M.S. degree by Mr. Hildebrand and part as a thesis for the M.D. degree by Dr. Finn.

1. Löhr, Wilhelm: Wundheilung, Leipzig, Johann Ambrosius Barth, 1937.

2. Banyai, Andrew L.: Personal communication to the authors in 1935; Topical Application of Cod Liver Oil in Tuberculosis, Am. Rev. Tuberc. **36:** 250 (Aug.) 1937.

3. Getz, Horace R.: Cod Liver Oil Therapy in Experimental Tuberculosis, Proc. Soc. Exper. Biol. & Med. **38:** 543 (May) 1938.

4. Jeans, P. C.: Vitamin Deficiency in Childhood, Minnesota Med. **16:** 688 (Nov.) 1933. Jeans, P. C., and Zentmire, Zelma: Prevalence of Vitamin A Deficiency Among Children in Iowa, Am. J. Dis. Child. **48:** 928 (Oct.) 1934; A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, J. A. M. A. **102:** 892 (March 24) 1934; The Prevalence of Vitamin A Deficiency Among Iowa Children, ibid. **106:** 996 (March 21) 1936. Jeans, P. C.; Blanchard, Evelyn, and Zentmire, Zelma: Dark Adaptation and Vitamin A, ibid. **108:** 451 (Feb. 6) 1937.

5. Jeghers, Harold: Night Blindness Due to Vitamin A Deficiency: A Consideration of Its Importance in Traffic Problems, New England J. Med. **216:** 51 (Jan. 14) 1937; Night Blindness as a Criterion of Vitamin A Deficiency: Review of the Literature with Preliminary Observations of the Degree and Prevalence of Vitamin A Deficiency Among Adults in Both Health and Disease, Ann. Int. Med. **10:** 1304 (March) 1937; The Degree and Prevalence of Vitamin A Deficiency in Adults with a Note on Its Experimental Production in Human Beings, J. A. M. A. **109:** 756 (Sept. 4) 1937.

6. Manufactured by the Frober-Faybor Company, Cleveland.

7. Palmer, Carroll E., and Blumberg, Harold: The Use of a Dark Adaptation Technic (Biophotometer) in the Measurement of Vitamin A Deficiency in Children, Pub. Health Rep. **52:** 1403 (Oct. 8) 1937.

RESULTS OF THERAPY

At first only persons with marked deficiency culled by the instrument were given treatment. Since 20,000 units of vitamin A per day in halibut liver oil [8] produced little or no change in six persons in two or three weeks, the dose was raised to 90,000 units a day. Some persons showed prompt response to this dose but others showed no change; 200,000 units of vitamin A daily in halibut liver oil did, however, initiate a response in fifty of the most deficient subjects in as short a period as two weeks. Usually the patients received this high dose until a favorable response was noted; then the dose was reduced to 100,000 units or less. All patients put on this treatment showed a reduction in their minimum light threshold, and only a few have failed to reach normal limits in two months.

TABLE 1.—*Results of Biophotometric Tests of Students*

	Pathologically Deficient, %	Borderline Deficient, %	Normal, %
229 Medical Students (November 1937)	6.55	12.22	81.22
71 Home Economics Juniors (February 1938)	11.27	15.49	73.24

In contrast, the response of five patients with borderline deficiency and two normal persons to 100,000 or more units of vitamin A was more prompt. In three weeks the minimum light threshold for all of these was reduced, and the persons with borderline deficiency had become normal. One of the persons showed, after the exposure to bright light, a reduction in his minimum light threshold from 0.36 to less than 0.05 millifootcandles. This would indicate that the state of vitamin A nutrition of the biophotometrically normal persons can be improved. That this may be of physiologic significance is suggested by the results of tests done with Dr. R. C. Herrin of the physiology department. Two persons with normal biophotometric readings and one with borderline deficiency were given 100,000 or more units of vitamin A daily in halibut liver oil, and urea clearance was determined before and after several weeks of treatment. Herrin and his associates [9] have reported that the urea clearance was almost doubled in these cases.

TABLE 2.—*Significant Data from Histories of Medical Students at the Time of the Biophotometric Test*

	Pathologically Deficient (15), %	Borderline Deficient (28), %	Normal (186), %
Frequent (more than 4 per year) or chronic colds	60.0	35.71	21.50
Postnasal drainage	53.3	39.29	25.27
Burning eyes	26.6	28.56	13.92
Acne	6.6	32.14	25.81
Dry skin	26.6	14.28	11.29
Early fatigue of eyes with night driving	33.3	35.71	16.66

The effect of single massive doses (2,000,000 units) on one normal person and on three with borderline deficiency are given in table 4. All subjects taking the massive doses of halibut liver oil experienced dull headaches but no other untoward symptoms.

All four subjects receiving the halibut liver oil showed a decrease in minimum light threshold, even subject 2 who had values consistently high in the normal range before the test. The peak was reached approximately four and one-half to five hours after consumption of the oil, and the next day the readings were back to the former level. Subject 5 was the same person as subject 4, tested five days later, when his readings had returned to the previous level. The change was so slight with carotene that it could well have been within the limits of normal daily variation, although this subject had never previously shown so large a change in one day.

RESULTS OF BIOPHOTOMETRIC TESTS OF TUBERCULOUS PERSONS

One hundred and ninety-seven mostly fever-free and ambulatory tuberculous patients, comprising all the persons with minimal disease available for testing and a representative group of those with moderately advanced and far advanced tuberculosis in three sanatoriums [10] in southern Wisconsin were tested during December 1937 and January 1938. Fifty-three per cent were found to be pathologically deficient (table 5). The stage of tuberculous involvement was not known to the biophotometric observer, but later the patients were grouped according to the standards of the National Tuberculosis Association by the chief resident physician in each sanatorium. The biophotometric results in each group are given in table 6.

TABLE 3.—*Dietary Habits of Medical Students at the Time of Testing*

	Pathologically Deficient (15), %	Borderline Deficient (28), %	Normal (186), %
Eat in restaurants	26.6	50.0	45.16
Cook and eat in living quarters	26.6	10.71	25.27
Eat in boarding house	46.6	39.29	29.57
Eat three complete meals per day	46.6	39.29	51.61
Eat two complete meals per day	26.6	39.29	36.02
Eat only one complete meal per day	26.6	21.42	12.37

RESULTS

It is impossible to tell whether the difference (table 1) between the medical students and the home economics juniors was due to seasonal variation, age, sex or group selection, but seasonal variation seems the most probable since the latter series was tested in February. The medical students were almost all males, and the home economics juniors were all females. The number deficient in each group is higher than one would expect; only 53 per cent of the deficiences could be explained on a dietary basis.

In comparing the data on the control groups with those for the tuberculous group one notes that 53 per cent of the latter group showed deficiency, as contrasted to 6.5 and 11 per cent of the normal controls. The tuberculous persons were somewhat older than the control subjects (table 5), although none were older than 50 and most of them were between 20 and 35. The number of persons with red hair was too small for the percentages to be of value, but the number of blonds may be sufficient. The fact that the percentage of blonds was twice as high in the deficient group as in the normal group seems important, since it is generally thought that they do not utilize carotene as effectively as do brunets. The favorable results obtained with

8. Supplied by Dr. Warren M. Cox Jr. of Mead Johnson & Co.
9. Herrin, R. C.; Nicholes, H. J., and Siebecker, K. L.: The Influence of Vitamin A upon Renal Clearance in Dog and Man, Am. J. Physiol. 123: 98 (July) 1938.

10. Muirdale Sanatorium, Wauwatosa, Wis.; Lakeview Sanatorium, Madison, Wis., and Wisconsin State Sanatorium, Statesan, Wis.

heliotherapy may be partly accounted for by selection of subjects to receive the treatment. The very sick persons are not given radiation. The data on subjects treated by pneumothorax are not particularly important but are included to give an indication of the clinical history. The figures on subjects given apicolysis and thoracoplasty imply that the sickest persons are the most deficient, since the milder lesions are not treated by apicolysis and thoracoplasty.

TABLE 4.—*Effect of Massive Doses of Vitamin A*

Subjects 1, 2, 3 and 4 received 50 cc. of halibut liver oil (2,000,000 or more units of vitamin A), Subject 5 (subject 4 retested) took 2,000,000 units of vitamin A as carotene.*
Millifootcandle readings after exposure to the bright light.

Time		Subject Number				
Hours	Minutes	1 (PG)	2 (BA)	3 (WS)	4 (HG)	5 (HG)
0	0	0.65	0.08	0.65	0.53	0.48
1	25	....	....	....	0.39	....
1	45	....	....	....	....	0.39
2	10	....	0.06	....	....	....
3	5	0.39	....	0.538	0.37	....
3	35	....	0.039	....	....	....
4	10	0.327	....	0.48	....	....
4	20	....	....	....	....	0.41
4	40	....	0.036	....	0.26	....
5	15	0.29	....	0.39	0.21	....
5	30	....	....	....	0.26	....
8	0	....	....	....	....	0.37
8	25	....	0.039	....	....	....
9	0	0.327	....	0.53	....	....
17	30	....	....	....	0.36	....
30	0	....	....	....	....	0.26

* Supplied by W. O. Frohring, S. M. A. Corporation, Cleveland.

Again, in table 6 the results indicate that the persons with far advanced disease are most apt to be deficient. The increase in percentage of deficiency seems to be parallel with the increase of the tuberculous involvement, except that the frequency in the group with minimal tuberculosis was much higher than in the group with moderately advanced disease. This may be due to the fact that because of the small number, every person with minimal involvement was tested, and we may have tested many that were more intoxicated by their infection than were the persons with moderately advanced disease. The fact that the percentage of borderline deficiency with minimal tuberculosis is correspondingly low would seem to justify this assumption (table 6). Of particular import is the decrease in the frequency of normal vitamin nutrition as the tuberculous involvement increases.

TABLE 5.—*Results of Biophotometric Tests of 197 Ambulatory Patients from Three Sanatoriums in Southern Wisconsin*

	Pathologically Deficient (105)	Borderline Deficient (46)	Normal (46)
Percentage	53.2	23.35	23.35
Average age	28.4	26.73	25.04
Months of tuberculosis	56.5	44.04	36.73
Percentage of females	58.65	57.45	43.48
Color of Hair:			
Red	1.92%	2.12%	4.34%
Blond	15.38%	14.89%	8.69%
Brown and black	82.69%	82.97%	86.96%
Treatment:			
Heliotherapy	8.65%	4.26%	28.26%
Pneumothorax	54.81%	57.45%	43.48%
Thoracoplasty	18.27%	17.02%	10.87%
Apicolysis	5.77%	2.12%	0.00%

Whether the tuberculous persons are deficient because of their infection or whether chronic infections develop because they have less vitamin A is still unanswered. One can only imagine what the percentage of deficiency would be in association with very active infection, for most of the subjects tested were ambulatory, fever free and not confined to "bed rest." The diets of the subjects seemed to contain amounts of vitamin A adequate for healthy persons. Forty per cent received additional vitamin A in fish liver oil although none received more than 30,000 units a day. This amount as a therapeutic dose is insufficient, as judged by our tests on nontuberculous persons. A preliminary study of the response of tuberculous persons to adequate vitamin therapy is under way.

COMMENT

The exact merit and significance of the various methods for determining vitamin A deficiency are still undetermined. Some workers have adapted the original Jeans technic to suit themselves, and others [11] have advocated changing the interpretation of the minimum light threshold so that fewer persons would be considered deficient in vitamin A. From our results it is suggested that many in the borderline group might be benefited by therapy. What may be a nonpathologic level of vitamin A nutrition for one person may give rise to symptoms in another, depending on factors not understood at present. We have presented data to show that the minimum light threshold may be lowered even in the so-called normal persons and that such a change affects the basic physiology of the kidney. Just what is the optimum amount of vitamin A for adults is unknown, but it would seem to be much more than has been previously recognized. The amount which was just sufficient to prevent xerophthalmia was once thought to be normal. Since the biophotometer has been developed it is recognized that a subclinical deficiency exists in many so-called normal persons. It is suggested that even normal persons according to the biophotometer might be benefited by more vitamin A. We must think of the optimum amount for the body and not the amount that will just prevent xerophthalmia or just prevent subclinical night blindness.

TABLE 6.—*Patients Grouped According to Standards of National Tuberculosis Association as to Their Stage of Tuberculosis at the Time of the Test*

	Number of Cases	Pathologic Deficiency, %	Borderline Deficiency, %	Normal Level, %
Primary	8	37.50	12.50	50.00
Minimal	26	57.69	3.84	38.46
Moderately advanced	102	47.06	28.43	24.51
Far advanced	56	60.71	25.00	14.28

We have used the Jeans interpretation in spite of the fact that we have presented data to show that the normal level can be changed by intensive vitamin A treatment. The original interpretation must be adhered to in order that results obtained by different workers may be somewhat comparable. The whole curve of regeneration should be used to judge a person deficient and not merely the reading taken immediately after exposure to the bright light, since this reading is the hardest to take accurately.

The evaluation of the method should not be confused by the finding of vitamin A deficiency in what seems to be a perfectly normal person consuming a diet judged to be adequate. That individual differences in absorption, utilization and demand for the vitamin exist should

11. Corlette, Marvin B.; Youmans, John B.; Frank, Helen, and Corlette, Mildred G.: Photometric Studies of Visual Adaptation in Relation to Mild Vitamin A Deficiency in Adults, Am. J. M. Sc. 195: 54 (Jan.) 1938.

be apparent. Furthermore, it is probable that some persons on a large intake of vitamin A may not use it economically and may store comparatively little; when these persons are forced suddenly to live on a diet much lower in vitamin A but adequate for normal persons they show a shift toward the deficient range and then gradually return to a more normal reading. We have noted this in four subjects receiving from 150,000 to 200,000 units of vitamin A daily in halibut liver oil. This agrees with the observations of Davies and Moore,[12] who fed cod liver oil to rats until the livers showed stores of vitamin A which should have been adequate to last them more than a hundred years, but when the animals were put on a vitamin A-free diet the vitamin A content of the liver dropped precipitously.

There is no reason to doubt that the minimum light threshold is intimately related to the state of vitamin A nutrition and can be lowered with vitamin A therapy. That the biophotometer does measure or indicate changes in the state of vitamin A nutrition is also apparent from our data. Some authors have failed to draw similar conclusions because of insufficient dosage and inadequate periods of treatment; others have become confused by the influence of learning factors and daily variations in the subject's response to the test. The poor or slow absorption of carotene may have contributed to the confusion. Our figures with carotene, while for only one subject, agree with those of Clausen[13] and of Drummond, Bell and Palmer,[14] who concluded that preformed vitamin A is absorbed more rapidly. Even with 200,000 units of vitamin A in halibut liver oil it takes almost two weeks to get a significant therapeutic response in some persons. We have noticed this especially in subjects who had a minimum light threshold above 3.98 millifootcandles, the limit of our instrument. This immediately suggests the existence of other factors affecting the utilization.

CONCLUSIONS

1. The biophotometer gives an indication of the state of vitamin A nutrition of adults.

2. Normal healthy persons (college students) are not infrequently deficient in vitamin A. Pathologic deficiency on the basis of Jeans's interpretation of the biophotometric readings existed in 6.5 and 11 per cent of two control groups.

3. All persons with a high minimum light threshold adjudged deficient in vitamin A benefited from treatment with halibut liver oil in that their light threshold was lowered.

4. Previously advocated therapeutic doses of vitamin A in halibut liver oil were found grossly inadequate as judged by the response shown by the biophotometer. Larger doses (up to 200,000 units daily) gave a response reasonably prompt in pathologically deficient and very prompt in borderline subjects.

5. In 53 per cent of the tuberculous persons tested there was a deficiency in vitamin A.

6. The vitamin A deficiency paralleled the severity of the tuberculosis.

12. Davies, A. W., and Moore, Thomas: Vitamin A and Carotene: The Elimination of Vitamin A from the Livers of Rats Previously Given Massive Doses of Vitamin A Concentrate, Biochem. J. **29**: 147, 1935.
13. Clausen, S. W.: Limits of the Anti-Infective Value of Provitamin A (Carotene), J. A. M. A. **101**: 1384 (Oct. 28) 1933.
14. Drummond, J. C.; Bell, M. E., and Palmer, E. T.: Observations on the Absorption of Carotene and Vitamin A, Brit. M. J. **1**: 1208 (June 15) 1935.

CONTRACEPTIVE METHODS

IRVING F. STEIN, M.D.
CHICAGO

Medical literature records that contraceptive methods have been used since about 2000 B. C.,[1] and evidence is at hand to the effect that even preliterate societies were familiar with such practices. The latter were confined chiefly to abortion and infanticide as a means of birth control, but magic rites were also performed by the medicine men. Primitive peoples also made tampons of roots, seaweed, rags or chopped grass and pills of tannic acid or opium, which they inserted as contraceptives; seed pods were used by them to serve as female condoms.

Among the earliest Egyptian records, notably in the Petri papyrus (1850 B. C.), prescriptions compounded as contraceptive aids contained "crocodile dung and ant paste, and honey." In the Ebers papyrus, prolonged lactation was encouraged for proper spacing, and the first reference to the use of a lint tampon for prevention of conception is to be found. A prescription for acacia tips, honey and lint to be inserted into the vulva is also recorded there.

Coitus interruptus and the use of sponge are referred to in Talmudic writings and in Aristotle's "Historia Animalium" (2 B. C.), the use of oil of cedar, ointment of lead or frankincense commingled with olive oil smeared on the cervix is described. Medicated pessaries of peppermint and honey inserted before coitus and pepper introduced afterward were methods advised by Dioscorides. Soft wool inserted into the cervical canal was one of many methods described by Soranos. Vinegar, one of the most widely used of the present day household remedies, was first mentioned in the literature of the sixth century in connection with astringent preparations such as alum, pomegranate and nutgall for prevention of conception.

Among the Chinese "Complete Collection of Valuable Prescriptions for Women," first published in 1237, quicksilver, gadfly and medicinal leeches taken internally were recommended both for contraception and for the production of abortion. A pill made of quicksilver fried a whole day in oil and taken on an empty stomach was said to result in permanent sterility without incurring bodily injury. A preparation of white lead was given prostitutes each month to suppress the menses and prevent impregnation.

In India a number of methods were used, varying from the practice of coitus obstructus to the drinking of sour rice water on certain days of the month and the precoital insertion of rock salt dipped in oil. There also one finds reference to the postmenstrual fumigation of the vagina with neemwood smoke to prevent pregnancy, and smearing it during menstruation with Palasha seeds mixed with honey and ghu.

Condoms probably had their origin in Japan, and examples of both hard and soft sheaths (tortoise, horn and thin leather) have been preserved to our day. Rubber condoms were introduced in Japan in 1871 after the process of the vulcanization of rubber became known. Women, chiefly prostitutes, inserted bamboo tissue paper tampons or disks of oiled paper into the vagina for contraception.

Islamic methods included along with many medicinal prescriptions for both male and female the practice of

1. Himes, N. E.: Medical History of Contraception, Baltimore, Williams & Wilkins Company, 1936; J. Contraception **2**: 99 (May) 1937.

coitus interruptus (withdrawal) and also the use of the "safe period." The latter, however, was a reversal in time of the present day theory. The use of suppositories of doe rennet or of elephant dung and honey were also among their methods.

In all sections of the world during the Middle Ages, various magic methods were in practice, but Himes

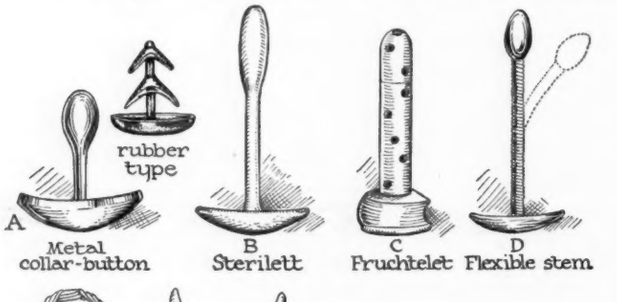

Fig. 1.—Various types of intracervical and intra-uterine contraceptive devices (adapted from Dickinson and Bryant and modified).

says that their effectiveness was probably very limited. It was a common belief that the seeds of fruitless trees, used medicinally, produced fruitlessness, the analogy being quite obvious.

In England, a year before the epochal essay of Malthus was published (1797), Bentham advised the use of the sponge tampon for contraception in order to reduce the British poor rates.

Many physicians feel that the present interest in contraception is either a temporary wave of reform or a social and economic problem peculiar to the tempo of modern times. But it is obvious from the foregoing that contraception was known and practiced by every race and civilization, from primitive savages who depended on tabus, magic and infanticide, down through the ages to the twentieth century. It now becomes our task to evaluate the methods which have persisted and those which have been evolved in our day. There is a definite need to inform the medical profession of the facts.

In this communication, purely physical methods will be considered. Various types of mechanical contraceptives have been developed. For intra-uterine use there are such devices as stems and rings, and as intracervical contraceptives there are buttons, stems and tubes, and combinations of rings and stems have been employed for many years. In addition, there are cervical caps and cups, vaginal occlusives, such as diaphragms, tampons and sponges, condoms or sheaths of both male and female types, and glans condoms. Some methods of contraception combine the use of some of the physical contrivances mentioned with chemical agents such as jellies, suppositories, tablets, powders and douches. The latter may also be used alone. For the purposes of this contribution, discussion will be limited to those methods which are to be condemned as contraceptives because of their possible harmful effects.

INTRACERVICAL AND INTRA-UTERINE DEVICES

Stem Pessaries.—Intracervical and intra-uterine stem pessaries used for contraceptive purposes claim the advantage of requiring but a single introduction by the physician and may be left for months or years. They are intended for long protection and do not require the cooperation of the patient. They need be removed only in case of bleeding or purulent discharge, pain or fever, and in the event of pregnancy.

The stem pessary had its origin in a device known as a "uterine elevator" (1863) for the correction of retroversion. This pessary was soon replaced, however, by a stem or tube calculated to facilitate conception by straightening the uterine canal and thus aiding the passage of spermatozoa to the fallopian tubes. Subsequently a split spring stem was developed for intra-uterine use in order to discourage implantation of the ovum. These contraptions, according to Dickinson,[2] while successful in skilled hands, resulted in many infections and in occasional deaths. The vaginal corrective pessary gradually replaced the "elevator" in the treatment of retroversion, and long uterine stems were shortened and modified in an attempt to obviate the inflammatory complications which attended their use.

Stem pessaries are made of heavy metal, such as gold and silver, and also of aluminum alloy, hard rubber, bone and even glass (Baldwin) and are chiefly employed by physicians for the treatment of sterility, dysmenorrhea, acute anteflexion of the uterus and hypoplasia.

At first, stems were held in place by means of a vaginal pessary and later were attached to caps or buttons which fitted over the external os. Some stems were split into Y or V shapes so as to be more effectively retained. The types of stems in use are often designated as collar-button, mushroom, butterfly, wish-

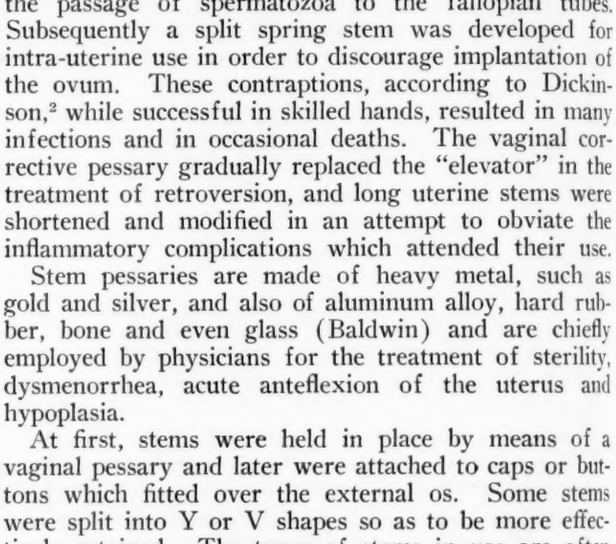

Fig. 2.—Complications incident to the use of stem pessaries (adapted from Dickinson and Byrant).

bone or Y-shaped stems, and specific instruments were known as the Sterillett, Fruchtelet and the Pust pessary; the latter consists of a ring of silk worm gut twisted into a stem which is attached to a glass button. The various types mentioned are illustrated in figures 1 and 2.

Although the use of the stem pessary has been largely discontinued by the medical profession because of

2. Dickinson, R. L., and Bryant, L. K.: Control of Conception, Baltimore, Williams & Wilkins Company, 1931.

uterine injury and pelvic infection (7 per cent according to Rawls [3]), there still appear to be some champions of these devices. Weir,[4] for example, reported recently a satisfactory experience of more than fifteen years' employment of the stem for the cure of dysmenorrhea. He did not use it as a contraceptive, however, as he believes that there are more satisfactory and less risky methods available. Weir inserted the stem pessary in 318 patients, in 91 per cent of whom the instrument was left for at least six months. While no complication appeared in the majority of cases, twenty-five patients had to have the pessary removed because of bleeding, cramps or both, one because of vaginal irritation and two for apparent pelvic infection. One of his patients became pregnant while wearing the stem and continued satisfactorily for two months after its removal, when abortion occurred after a fall. Kennedy, in discussing Weir's paper, stated that he has discontinued the use of the intra-uterine stems since he was obliged to operate on two patients for tubal infection following the insertion of the stem pessary for dysmenorrhea. Gellhorn [5] stated that he had used intra-uterine stems in hundreds of cases for relief of obstructive dysmenorrhea and sterility, and also for infantilism, with good results. However, these reports are counterbalanced by an increasing number of histories of serious pelvic infection and quite a few deaths resulting from this practice. Robert Frank [6] is of the opinion that carcinoma as well as uterine and cervical infection may be traced to the use of these devices and reports that Neugebauer collected reports of six cases in which neglected pessaries caused irritation on which cancer developed. Of course there is no proof that the pessary was the direct cause of the malignant condition.

In my own experience, operation was required in a patient for a unilateral tubo-ovarian abscess which resulted from the use of a Y-shaped silver stem inserted by a physician one year previously as a contraceptive. When bleeding and fever developed, the physician removed the stem. The pelvic inflammatory disease continued and an abscess formed, necessitating surgical intervention.

According to Curtis [7] the metal cervix pessary causes endometritis and obstruction to drainage, resulting in widespread pelvic infection. He also states that pelvic cellulitis may develop from a lost stem, which frequently works its way upward into the uterus and produces a foreign body infection. Furthermore, stems may perforate the uterine wall or become embedded and so create a pathway for the ascent of bacteria into the uterus. Sussex [8] reported a case in which hysterectomy was required because of perforation by a gold stem pessary. Cooper,[9] after discussing the use of various intra-uterine stems and stating their disadvantages, warns that numerous infections and some deaths have been reported. Warner [10] also stresses their dangers.

Pregnancy may occur in the presence of an intracervical pessary and, according to Norman Haire,[11] if such a device remains longer than one month it is likely to cause abortion; such abortions are often accompanied by sepsis. He describes a variety of pessaries which are utilized for contraception and particularly condemns the use of the Fruchtelet. All these devices, he says, exert a centrifugal pressure on the uterine walls, which after some time produces necrosis and ulceration. He regards the stem as a dangerous instrument, for he has never seen a case in which its presence was not accompanied by a pathologic condition. Abscess of the uterus and tubes and fatal peritonitis have been observed. In a case in which the "gold pin" had ulcerated through the wall of the uterus, hysterectomy was required.

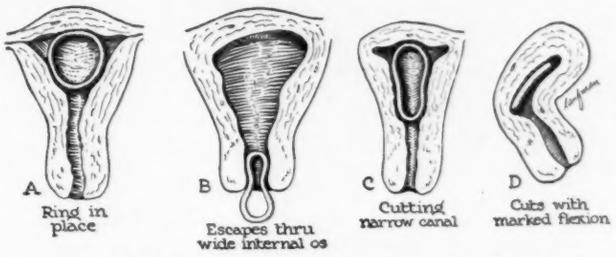

Fig. 3.—Gräfenberg intra-uterine contraceptive ring (adapted from Dickinson and Byrant).

Siddall [12] comments that it is not uncommon for a physician to be called to treat an illness resulting from the use of the intra-uterine pessary. He described a case in which he had difficulty in removing one of these pessaries because the cervical tissue had grown into the openings of the button. The patient was two weeks overdue when severe bleeding associated with high fever occurred. He mentions the cases reported by Rübsmen and Richter and by Royston, who removed pessaries during early pregnancy for like reasons, and states that in Kehrer's opinion if a stem pessary is inserted (accidentally?) during early pregnancy and is left for one week it may cause endometritis, resulting in salpingitis, parametritis, pelvic peritonitis and even death.

According to Dickinson and Bryant,[2] the two types of stem pessary which are chiefly responsible for the inflammatory complications and deaths are the "Sterillett" and the "Fruchtelet." These authorities have collected statistics on the morbidity and mortality incident to the use of such devices and report that, among others, Gummert collected records of ninety-two pregnancies which supervened in spite of the presence of the stem. Abortion occurred in seventy-eight cases, 80 per cent of which were septic; there were thirty-seven cases of peritonitis and seven perforations. They also quote D. P. Smith, who recorded two deaths from general sepsis resulting within two weeks of the insertion of wishbone pessaries by a general practitioner. Reist collected reports of 381 cases in which there were seventeen deaths from general peritonitis or sepsis, eight of which, however, were from stems deliberately inserted to produce abortion. Among the complications noted were nine perforations, forty-four cases of peritonitis and sixty-two septic abortions.

Intra-Uterine Rings.—A type of intra-uterine device, known as the Gräfenberg ring (fig. 3), has been extensively employed abroad for a number of years as a contraceptive. Three types of rings were utilized—a star of silkworm gut, a circle of silkworm gut and, finally, a spiral silver ring. The ring is inserted into

3. Rawls, R. M.: Am. J. Obst. & Gynec. **1**: 499 (Feb.) 1921.
4. Weir, W. H.: Am. J. Obst. & Gynec. **33**: 291 (Feb.) 1937.
5. Gellhorn, George: Gynecological and Obstetrical Monographs, New York, Appleton-Century Company, Inc. **14**, 1931.
6. Frank, Robert: Gynecological and Obstetrical Monographs **12**: 128, 1931.
7. Curtis, A. H.: Textbook of Gynecology, Philadelphia, W. B. Saunders Company, 1930, pp. 52, 293; Obstetrics and Gynecology, W. B. Saunders Company **2**: 550, 1933.
8. Sussex, L. T.: Penetration of the Uterus by Gold Stem Pessary, J. A. M. A. **100**: 1490 (May 13) 1933.
9. Cooper, J. F.: Technique of Contraception, Day-Nichols, 1928.
10. Warner, M. P.: Dangers of Gold Stem Pessaries, M. Rec. **142**: 69 (July 17) 1935.
11. Haire, Norman: Birth Control Methods, London, George Allen & Unwin, Ltd., 1936.

12. Siddall, R. S.: Am. J. Obst. & Gynec. **8**: 76 (July) 1924.

the uterine cavity after dilation of the cervix to number 5 or 6 Hegar, and the presence and location of the ring must be checked up from time to time by means of the uterine sound or by x-ray examination. The occurrence of bleeding or pain necessitates removal of the ring, a procedure more difficult than its introduction. On the other hand, the ring may slip out accidentally and unobserved by the patient, thus entirely defeating its purpose. It may become displaced. In its presence normal pregnancy rarely occurs, but ectopic pregnancy is in no way prevented by the ring.

According to Robert Meyer, who examined the endometrium of fifteen patients who wore the ring one year or longer, no inflammatory change is produced by its presence. Stefko and Lurié [13] have shown that when pregnancy does occur with the ring in the uterus the embryo may be injured, resulting in deformed children. Leunbach [13] of Copenhagen at first reported favorably on the use of the silver Gräfenberg ring but in 1930 withdrew his endorsement. In 12 per cent of his patients, bleeding and pain required its removal.

Gräfenberg,[13] the originator of the ring, who has used it for many years, had ninety-nine bad results in 1,081 cases, but less in the case of the silver ring than when silkworm gut was used. Thirty-one pregnancies occurred in his series, four of which took place while the ring was in the uterus and twenty-seven after the ring had been lost. Thus failures occur in about 3 per cent of patients. Inflammation occurred in seventeen patients; furthermore, replacements had to be made in 408 cases from one to eight times, a total of 1,390 instances. No mention is made in the literature of malignant conditions resulting from the use of these intra-uterine devices. In cases in which inflammation occurs, one would expect sterility as a sequel.

Green-Armytage [14] reported a case in which pregnancy took place in the presence of the ring, which had been inserted six months previously; the ring became embedded in the chorion, causing pain, discharge and fever. Cregan [15] observed a patient who became pregnant while wearing a Gräfenberg ring; septicemia developed following otitis media, and abortion ensued. Andrews,[16] in an article entitled "Migrating Gräfenberg Ring," was required to perform vaginal hysterotomy when the patient was four months pregnant for removal of the ring, which had become embedded in the wall of the cervix beneath the bladder reflection. Murphy [17] found a Gräfenberg ring in the broad ligament during laparotomy; a normal pregnancy was present at the time. Carleton and Phelps [18] experimented with Gräfenberg rings on rabbits and concluded that the devices should be made of gold rather than of silver, since the latter become brittle and are liable to break owing to the slow formation of silver sulfide. They observed no hypertrophy or inflammatory changes in the endometrium due to the presence of the ring but they did note flattening and irregularity in the shape of the cells in the grooves in which the ring lay, accompanied by pressure atrophy of the adjacent glands.

The Gräfenberg ring has not enjoyed extensive popularity in this country, and Dickinson has shown that in order to use such a device intelligently one must first have an accurate picture of the uterine cavity such as may be obtained by x-ray examination after instillation of iodized oil or other contrast mediums, for there are many variations in size and shape of the uterine cavity in the normal individual.

There are very few justifiable uses for the stem pessary at the present time, one of these being its insertion following cervical amputation, to prevent stricture. In this instance, however, the necessity for its use is limited to but a few weeks. In spite of the satisfactory experiences of Weir, Gellhorn and others, its use for other conditions, such as dysmenorrhea, has been largely discontinued by gynecologists. The use of intra-uterine and intracervical stem pessaries for contraceptive purposes is to be condemned, since it has been shown by the numerous reports quoted that not only do failures occur but serious damage frequently results to the pelvic organs. Cases of endometritis, parametritis, salpingitis, perforation and peritonitis are cited, and even deaths have occurred.

In the case of the intra-uterine ring complications are less likely to occur, but repeated observations are required to ascertain the proper location of the ring, either by means of x-ray examination or by intra-uterine instrumentation. Pregnancy has occurred in its presence and complications have been reported from this source. Bleeding and cramps may require removal, which at times is somewhat difficult owing to the flexibility of the device.

310 South Michigan Boulevard.

13. Cited by Dickinson and Bryant.[2]
14. Green-Armytage, V. B.: Brit. M. J. **1**: 13 (Jan. 2) 1932.
15. Cregan, G. T.: Brit. M. J. **1**: 237 (Feb. 6) 1932.
16. Andrews, C. J.: Migrating Gräfenberg Contraception Ring, J. A. M. A. **107**: 279 (July 25) 1936.
17. Murphy, Margaret C.: Lancet **2**: 1369 (Dec. 16) 1933.
18. Carleton, H. M., and Phelps, H. J.: J. Obst. & Gynaec. Brit. Emp. **40**: 81 (Feb.) 1933.

INTRAVESICAL ROENTGEN THERAPY OF CANCER OF THE URINARY BLADDER

SIDNEY C. LEVINE, M.D.
PATERSON, N. J.
GEORGE T. PACK, M.D.
NEW YORK
AND
JAMES S. GALLO, M.D.
HALEDON, N. J.

During the past decade, x-ray therapeutists in this country have been especially interested in the development of supervoltage roentgen therapy. In Germany, however, where the cost of radium is prohibitive, physicists and radiologists have devoted some attention to the construction of low voltage x-ray machines for therapy in attempts to approximate the same conditions obtained in radium treatment. The superior value of radium as it is generally used in the treatment of cancer cannot be attributed to a more selective action of the gamma rays than of x-rays on cancer cells but rather to the fact that the radium-skin distance is short and that most of the energy is absorbed in the tumor and tumor bed. Radium has given excellent results in the treatment of superficial cancers because of this characteristic distribution of the dose in tissues. The effect obtained from interstitially placed radium element needles or radon seeds in proper dosage has approached the ideal requirement, namely the destruction of all cancer cells with the least destruction of the normal surrounding tissues. With interstitial radium or radon seeds the source of the radiation is in the tumor itself, and because of the inverse square law there is a rapid

From the Josephine Lendrim Tumor Clinic, Paterson General Hospital, Paterson, N. J.

decline in the effect of the dose, and the surrounding tissues are damaged only slightly. The use of radium, however, involves expense and complicated technic in application and presents some difficulties in the protection of surrounding normal tissues. These disadvantages have stimulated the attempts to find an x-ray

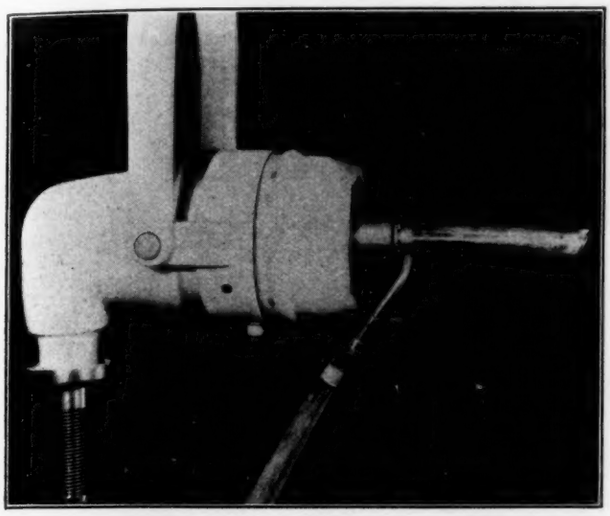

Fig. 1.—Chaoul x-ray tube for low voltage contact or short distance roentgen therapy.

tube which would combine the advantages of radium dose distribution and the economy, efficacy and convenience of the x-rays.

DESCRIPTION OF CHAOUL ROENTGEN APPARATUS

Special x-ray tubes furnishing a dose distribution similar to radium were designed many years ago and then abandoned because of technical difficulties concerned with the prevention of shock to the patient. These difficulties were subsequently overcome and the short distance or contact x-ray method was developed.

Schaefer and Witte of Göttingen, Germany, experimented in 1929, using a Lenard tube and cathode rays only; they later added a metal filter over the tube opening which did not permit the emergence of the cathode beam and served as the anode. They were interested in the radiation therapy of gynecologic neoplasms, which are usually situated deeply, so they designed an apparatus operating with 90 to 100 kilovolts and 4 milliamperes. The thin copper filter or transmission anode was plane, planoconcave or planoconvex to modify the shape and focal sharpness of the emergent beam.

Chaoul of the Charité surgical clinic, Berlin, designed an apparatus for low voltage, short distance or contact roentgen therapy. This apparatus is essentially limited to a voltage range of 50 to 60 kilovolts with a filtration of 0.2 mm. of copper. The anode is so placed that the tube operates at contact or at from 3 to 5 cm. target-skin distance. It has applicators or cones of various sizes and shapes to place against the cancers to be treated. These attachable cones are small and can therefore be placed in the various cavities of the body. The Chaoul x-ray machine is necessarily shock proof.

PRINCIPLES OF CONTACT OR SHORT DISTANCE ROENTGEN THERAPY

The short distance or contact x-ray treatments make possible the delivery of doses to the tumor sufficient to disintegrate tumor cells and yet spare the healthy surrounding tumor bed by using small fields sharply localized about the tumor. It furnishes limitation of depth effect by producing a steep energy gradient. The latter is obtained by decreasing the target-skin distance and the voltage delivered to the tube. With this apparatus a soft x-ray beam is utilized, and these rays are absorbed in the superficial tissues. For contact application the dosage rate is approximately 800 roentgens per minute; for a target-skin distance of 3 cm. it is approximately 88 roentgens per minute, and for a target-skin distance of 5 cm. it is approximately 36 roentgens per minute. The intracavitary beam of low voltage x-radiation is restricted to the desired areas with an accuracy that is not possible even with radium. It obviates the necessity of all the unsatisfactory protective devices necessary when radium is used. This apparatus, of course, does not take the place of radium for all types of applications. It has only a specialized usefulness. Chaoul recommends contact therapy for any superficial tumor. The use of this method has been extended to include all tumors that could be made accessible by a surgical procedure.

PRINCIPLES OF INTRAVESICAL ROENTGEN THERAPY (AUTHORS' METHOD)

Heretofore the routine method in the treatment of carcinoma of the bladder has been cystotomy, endotherm excision with a snare of the tumor if it is papillary and interstitial implantation of radon seeds into the base of the cancer. This was followed usually by external high voltage roentgen therapy.

The authors conceived the idea that this scheme of treating bladder carcinomas might be improved on by making the cancer of the bladder accessible not for a short time but over an extended period and by treating the cancer thus exposed by repeated fractionated doses

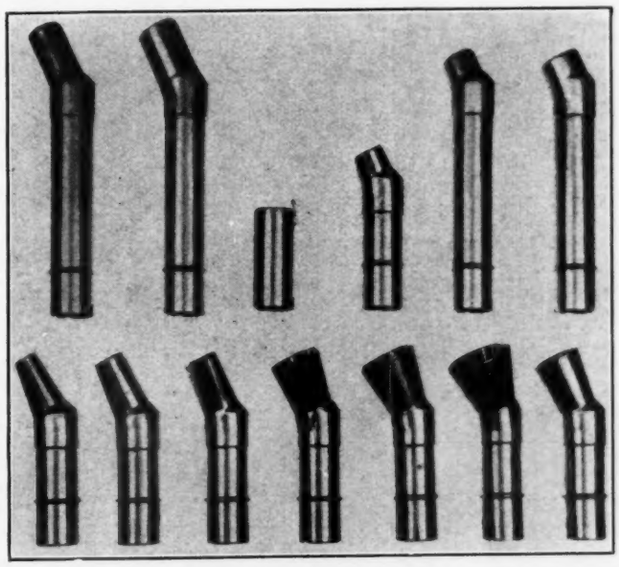

Fig. 2.—Cone attachments showing ports of various sizes and shapes. These cones may be sterilized and placed in position before the x-ray tube is inserted.

of low voltage x-rays applied at short distances. By use of the Chaoul low voltage x-ray outfit, a maximum amount of radiant energy is delivered directly to the cancer with the least amount of injury to the adjacent healthy bladder. This method further obviates the intense reaction and damage to the skin which results from the use of external high voltage x-rays. The method of treatment devised by us consists of (*a*) marsupialization of the bladder, (*b*) endotherm excision

of the bulk of the cancer when possible and (*c*) maintenance of an opening into the bladder so that the low voltage Chaoul tube may be repeatedly inserted against the cancer at the base of the bladder. Our brief experience with this method has convinced us that it has many advantages and no apparent contraindications or disadvantages.

ADVANTAGES OF INTRAVESICAL ROENTGEN THERAPY IN CANCER OF THE BLADDER

The advantages of intravesical roentgen therapy in cancer of the bladder are the following:

1. Ease and accuracy of application.
2. That the dosage delivered is almost the amount of dosage received by the tumor itself, in contradistinction to other methods of irradiation.
3. Sharp limitation of radiation effect to the cancer.
4. Minimum damage to surrounding healthy tissues.
5. That accessibility of the cancer can be maintained for an indefinite time, thereby allowing constant observation of the cancer and the degree of regression, permitting changes in the upper limits of dosage.
6. Freedom from radiation sickness.
7. Quicker and more comfortable convalescence.
8. Reduction of incidence of bladder infection and, because of the exposure, more satisfactory treatment of the infected bladder.

TECHNIC OF MARSUPIALIZATION OF THE URINARY BLADDER

The technic of marsupializing the bladder is as follows: A midline incision, starting about one-half inch above the symphysis pubis and extending for about

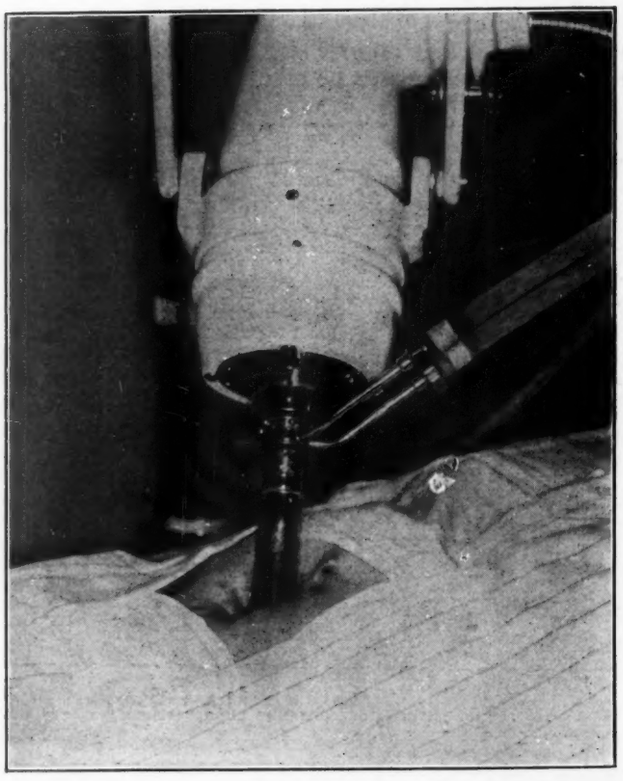

Fig. 3.—X-ray tube in position in urinary bladder through a marsupialized cystostomy.

4 inches toward the umbilicus, is made through the skin and fascia. The rectus muscles and fascia are separated in the midline and the bladder, which has previously been distended with water, is approached. The peritoneum is reflected by means of the index finger of the right hand, covered with wet gauze, from its lowermost attachment up to the highest point possible in the front of the bladder. The peritoneum and prevesical space as well as the sides are covered with moist laparotomy pads and retractors placed over them, giving a good exposure of the bladder. The bladder wall is grasped by two Allis clamps at a point just below the reflected peritoneum. A trocar is then intro-

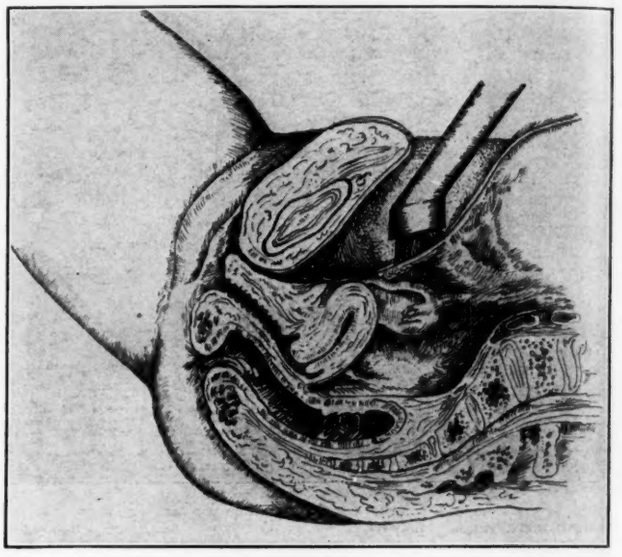

Fig. 4.—Diagrammatic sagittal view of x-ray cone in position.

duced into the distended bladder and most of the contained fluid drained. The edges of the opening made by the trocar are now grasped by Allis clamps, which hold the mucosa as well as the muscle. An aspirating tube is then introduced through the cystotomy opening to withdraw the remaining fluid in the bladder. The opening in the bladder is now enlarged downward and wire retractors are inserted so that the interior of the bladder can be well visualized. At this time, if it is possible and the tumor is bulky, it is excised at its base by the cutting current of an endotherm snare. The bleeding is stopped by bipolar endotherm coagulation. The edges of the opening in the bladder are now sewn to the skin and rectus fascia by chromic catgut sutures. A large Marion drain 28 mm. in diameter, about which is wrapped sterile gauze moistened with sterile olive oil, is left in the marsupialized bladder. A thick dressing is then applied to the wound to absorb any excessive moisture. Petrolatum gauze is placed around the wound to protect the skin. The Marion drain is then connected with a rubber tube leading to a sterile bottle attached to the bed.

Four or five days is now allowed to elapse to insure a definite anchoring of the bladder wall to the abdominal wall. The patient is now ready for the intravesical insertion of the Chaoul x-ray tube.

TECHNIC AND DOSAGE OF INTRAVESICAL ROENTGEN THERAPY

The patient is given one-fourth grain (0.015 Gm.) of morphine sulfate one hour before the treatment is begun. For the first few treatments until the wound is well healed this narcosis may be supplemented by small doses of sodium evipal or avertin with amylene hydrate administered rectally. The wound on the abdominal wall is draped, and sterile precautions are taken. The Marion drain is now removed. Sterile gloved fingers are then inserted into the bladder and the cancer is

carefully palpated. A cone is chosen which will adequately cover the entire cancer. The cones to be attached to the Chaoul tube permit a target-skin distance of from 3 to 5 cm.; the selection of one or the other depends on the thickness of the cancer. It should be remembered here that not only the attached cones are within the bladder cavity but also the x-ray tube itself; the roentgen rays in fact are generated in the tube within the bladder at a distance of only 3 to 5 cm. from the cancer. The cone is placed in the desired position and the tube stand is manipulated so that the anode end of the tube can be slipped into the open end of the cone. The treatment is now ready to begin. The optimal fractional doses have not yet been found, but 2,500 roentgens have been given every other day. The bladder is kept open and the cancer is palpated at the time of each treatment in order to determine the degree of regression. It has been found that nine or ten treatments over a period of eighteen or twenty days for a total dosage of 22,500 or 25,000 roentgens has caused satisfactory regression. The total dose will naturally depend on the degree of regression observed.

At the conclusion of the roentgen treatments the marsupialization is maintained for frequent palpation of the bladder wall. When it is definitely decided that sufficient radiation has been delivered to the tumor area and the patient's condition warrants it, a secondary operation is performed for the replacing of the bladder in its normal position and closure of the wound of the abdominal wall.

The technic for this secondary operation is as follows: The marsupialized bladder is separated from the skin and rectus fascia and dropped down into the pelvis. The bladder wound is sewn about a mushroom catheter. The abdominal wall is now repaired as for a hernia. The suprapubic tube is left in the bladder until the patient voids. After the eighth day the suprapubic tube is clamped; after the patient voids for twenty-four hours with the tube clamped, the tube is removed.

REPORT OF ILLUSTRATIVE CASE

A woman aged 67 came to the clinic complaining of hematuria of several weeks' duration. A cystoscopy was done and a specimen for biopsy was obtained. Pathologic examination of the tissue removed revealed epidermoid carcinoma, grade 3. A granular, friable, fungating tumor was found on the left side of the bladder wall near the trigon. It measured about 2 by 2 cm. in diameter. Shortly after cystoscopy the bladder was marsupialized and the fungating bulk of the tumor was removed by an endotherm snare. After adequate anchorage of the bladder wall, intravesical roentgen therapy was begun. The low voltage roentgen treatments were given every other day with a target-skin distance of 3 cm., 0.2 mm. copper filtration, and 60 kilovolts. Twenty-five hundred roentgens was given with each treatment. The time for each of these treatments was twenty-nine minutes. Nine such treatments were administered for a total dosage of 22,500 roentgens. The induration of the bladder wall subsided steadily and at the time of the secondary closure of the bladder, two months after the first operative procedure, no evidence of the tumor could be found. The patient has since been kept under careful supervision and is symptom free except for slight frequency of urination.

SUMMARY

In recent years Schaefer,[1] Witte and Chaoul [2] have developed efficient shock-proof apparatus for low voltage roentgen therapy which can be given at the relatively short target-skin distances of 3 and 5 cm. or, if desired, by actual contact of the tumor with the anode or target that transmits the beam. Chaoul has extended the applicability of this method from accessible cancers, e. g. the oral cavity, the skin and cervix uteri, to cancers of the rectum made accessible by surgical procedures. One of us (G. T. P.) conceived the idea of applying this principle to the treatment of carcinomas of the bladder. The principle of marsupialization of the bladder over an extended time to permit fractionated doses of low voltage x-rays to be applied through intravesical cones is new. Although the experience with this method is necessarily limited and the time after treatment is too short to evaluate its curative value, it seems at this time to offer a distinct improvement over the previous methods of treating carcinomas of the bladder.

1. Schaefer, Walter: Zentralbl. f. Gynäk. **61**: 22-24 (Jan. 2) 1937.
2. Chaoul, Henri: Strahlentherapie **53**: 202 (June 29) 1935.

CEREBRAL COMPLICATIONS FOLLOWING LIGATION OF THE CAROTID ARTERY

J. L. FETTERMAN, M.D.
AND
W. H. PRITCHARD, M.D.
CLEVELAND

Ligation of the carotid artery has been used over a considerable period as a therapeutic measure for a variety of serious craniocerebral conditions. Originally it was used as an emergency measure in an effort to control severe hemorrhage following lacerations of the great vessels of the neck and head (Pilcher and Thuss [1]). During the middle years of the nineteenth century it was attempted for the purpose of relieving the then incurable cerebral disorders, as for example intense trifacial neuralgia and chronic epilepsy. However, the mortality was high and the permanent residual symptoms of recovered patients serious. Consequently the operation was discarded.

In the past thirty years, with the increasing safety of surgical measures, the procedure has been reintroduced, particularly in the treatment of arteriovenous aneurysms, either anomalous or traumatic (Campbell and Martin,[2] Gutmann [3]). In certain instances ligation of the vessels has been carried out for peritonsillar (Greenfield [4]) and nasal hemorrhage. Frequent cranial trauma leads to occasional arteriovenous communication between the external carotid artery and the cavernous sinus, and the resulting pulsating exophthalmos becomes the most common indication for carotid ligation (Kolodny [5]).

The seriousness of carotid ligation was stressed by Pilcher and Thuss, who concluded from their extensive review of the literature that in from 20 to 25 per cent of patients who survive the operation cerebral complications develop. Matas [6] found but 11 per cent

From the Neuropsychiatric Division, Lakeside Hospital, and the School of Medicine, Western Reserve University.

A preliminary report of this paper was read before the Cleveland Neurologic Society, Wednesday, March 17, 1937.

1. Pilcher, Cobb, and Thuss, Charles: Cerebral Blood Flow: Cerebral Effects of Occlusion of the Common and Internal Carotid Arteries, Arch. Surg. **29**: 1024 (Dec.) 1934.
2. Campbell, J. L., and Martin, J. D.: Pulsating Exophthalmos: Treatment by Partial Ligation of Internal Carotid, J. A. M. A. **99**: 1683 (Nov. 12) 1932.
3. Gutmann, J. H.: Surgical Aspects of Pulsating Exophthalmos, Internat. J. Med. & Surg. **48**: 259 (July-Aug.) 1935.
4. Greenfield, S. D.: Ligation of the External Carotid Artery for Peritonsillar Hemorrhage, Laryngoscope **43**: 929 (Nov.) 1932.
5. Kolodny, Anatole: Pulsating Exophthalmos, Am. J. Ophth. **15**: 327 (April) 1932.
6. Matas, Rudolph, in discussion of Dandy.[7]

showing serious cerebral sequelae. Dandy[7] urges caution in this procedure with any patient over 30 years of age.

Recently we have had the opportunity of studying the neurologic complications following such ligation, to observe the clinical course and ultimately to examine the brain post mortem. Our data may be of interest.

REPORT OF CASE

History.—K. L., a man aged 37, was admitted to the wards of Lakeside Hospital in November 1936, because of right hemiplegia of three months' duration. In 1924 he had undergone appendectomy for a gangrenous appendix. At that time also he had had several inches of his ileum removed because of tuberculous enteritis.

The present illness occurred abruptly in February 1936 when a profuse nasal hemorrhage from his left nostril developed during shaving. No known cause for the bleeding could be found. Despite intranasal packing and local applications, the bleeding continued. He was hospitalized, and although he received five transfusions in seven days the hemorrhage continued and his condition became critical. When all other measures had failed and the red blood cell count had fallen to 1,300,000, both the external and the internal carotid arteries on the left side were ligated. Two and a half hours after this procedure flaccid right hemiplegia with difficulty of speech and swallowing was noted.

The clinical course thereafter was that of chronic disease. He was unable to use his arm or leg, he could not express himself, and three months later convulsions developed.

Examination.—At the time of his first admission the patient appeared poorly nourished and apathetic looking. The significant abnormalities were entirely neurologic. There was complete right hemiplegia, with marked spasticity, muscular atrophy and hyperactive reflexes and associated confirmatory signs of involvement of the pyramidal tract. Sensory tests revealed diminution in pain, in temperature and in touch, with astereognosis on the right. There was marked aphasia. The blood pressure was 114 systolic and 64 diastolic, and laboratory tests, including a platelet count and determination of bleeding and of clotting time, gave normal results. Spinal puncture revealed normal fluid with an initial pressure of 120 mm. of water and a total protein value of 23 mg. per hundred cubic centimeters. The visual fields showed partial right homonymous hemianosia, affecting chiefly the lower quadrant.

It was felt that the patient had diffuse left cortical atrophy subsequent to his operation. His treatment was symptomatic, with physical therapy to the affected parts.

He was readmitted to Lakeside Hospital Sept. 13, 1937, because of weakness and loss of weight of four months' duration. He had had no return of function in his extremities, and atrophy of the muscles of the right shoulder girdle had developed. His speech, however, had improved somewhat and his convulsions become less frequent. The physical status on this admission was unchanged, with the exception of observations consistent with general loss of weight. All studies of the blood again gave normal results.

Encephalographic study performed at this admission by Dr. Claude Beck was recorded as follows by Dr. Eugene Freedman: "The roentgenograms show a tremendous dilatation of the left lateral ventricle, which is approximately four or five times normal" (figs. 1 and 2). The diagnosis was marked atrophy of the left side of the cranium.

A battery of intelligence tests were given by our psychologist, Margaret R. Barnes. The results were as follows:

"Arthur point performance scale: chronologic age adult; mental age 8 years; intelligence quotient 53. Achievement Tests: (1) Metropolitan achievement test (primary I, form A grade equivalent): Word picture 2.1, word recognition 1.5, number concept 2.7. (2) Stanford achievement test (advanced examination form A): arithmetic: computation, educational age 9 years 5 months; grade placement 3.6.

"Comments: The Arthur scale rates the patient as having a low moron grade of feebleminded intelligence. He is handicapped on this test to the extent that some patients speed up their time scores by using both hands. Also he now uses his left hand, whereas he is normally right handed. However, he has been using his left hand for about two years and should have reached maximum efficiency by this time.

"The school achievement tests were attempted for some indication of how much of his old learning he had retained. His ability to manipulate verbal concepts is decidedly limited. The word picture test asks that the patient connect the printed word with a picture. This he can do as well as a beginning second grader. The word recognition tests require that the patient pick out from several words very much alike one which is presented orally. This he does as well as a child beginning 1A grade. The third verbal test requires that he underline all the words among several which belong to a given category. He did not fail in this because he did not understand the directions, as the trial tests were worked out correctly although with much more difficulty than is ever experienced with the normal first grade child. During the actual test he failed completely. It is interesting to note that with the ascent of probable abstractness of the task the patient failed progressively. The same tendency showed itself in the test of number concepts, although his retention has been better in this than in the verbal field.

"The Stanford achievement test was given first, and it was found that the patient has lost all memory of what the conventional symbols mean. When they were explained, he did computational problems as well as a child beginning 3A grade."

In considering the serious intellectual impairment which this test revealed, it is important to remember that prior to the ligation this patient had been a keen, active, successful business man of at least average intelligence.

Course.—Several months later a serious intestinal ailment developed, characterized by nausea, hiccups and diarrhea. The roentgenograms revealed a granulomatous lesion in the colon, proved after resection to be tuberculous. He died on his second postoperative day of this condition, which was independent of the major neurologic disorder.

Postmortem Examination (performed by Dr. C. H. Evans of the Institute of Pathology of Western Reserve University, with neuropathologic study by Dr. A. T. Steegman).—The cause of death as revealed by the autopsy was generalized acute peritonitis, with tuberculous foci in the peritoneum and lungs.

The brain weighed 1,400 Gm. Over the left frontal and parietal lobes an indentation in the cerebral cortex extended 11.5 cm. and averaged 2.5 cm. in width, running parallel and superior to the sylvian fissure and extending anteriorly to a point 3.5 cm. from the median longitudinal fissure. Over the indentation a cystic structure fluctuated with any motion of the organ. Transverse coronal section of the fixed brain (fig. 3) showed the ventricles to be uniformly dilated, but the left lateral ventricle was much larger than the right. An area of necrosis in the distribution of the left external portion of the sylvian artery extended forward almost to the left frontal lobe and involved three frontal convolutions; posteriorly it extended to the occipital lobe. Both white and gray matter were destroyed, but the cystic structure had not ruptured into the lateral ventricles. The temporal lobe was spared. Part of the outer portion of the caudate nucleus had been destroyed, with extension to the external capsule. Posteriorly the region of the supramarginal gyrus was involved, with extension to the intermedial lateral aspect of the occipital cortex.

Degeneration of the secondary nerve tract was evidenced by marked reduction of the superior lateral aspect of the thalamus, the left side of the left peduncle and pons, the left inferior portion of the medulla and the right lateral columns of the upper cervical segment of the cord (fig. 4). In the circle of Willis, the left posterior communicans artery was entirely absent. The right posterior communicans artery was less than 1 mm. in diameter. The vertebral arteries were dilated, and a few atheromatous plaques were present over the intima. The lumen of the left internal carotid artery had been obliterated. The stump of the right showed moderate arteriosclerosis (fig. 5).

7. Dandy, W. E.: The Treatment of Carotid Cavernous Arteriovenous Aneurysms, Ann. Surg. **102**: 916 (Nov.) 1935.

COMMENT ON THE OUTSTANDING CLINICAL SYMPTOMS

Personality and Mental Status.—According to the available history the patient had previously been a successful, well adjusted business man, well liked socially and loved at home. After the catastrophe he became moody, morose and irritable. Everything in the household upset him; the playing of his children

Fig. 1.—Anteroposterior encephalogram showing the tremendous dilatation of the left lateral ventricle, with slight displacement to the left. The picture shows clearly the "hydrocephalus ex vacuo."

disturbed him; situations in the home aroused him to outbursts of anger. On one occasion he made a gesture at suicide. In contrast to the difficult behavior at home, for the most part he smiled cheerfully at the hospital, cooperated well and acted pleased with his environment. He made friends with other patients and took cognizance of the activity in the ward. In the course of the neurologic examination he would observe keenly his reflex responses and the success or failure of various tests. At times he would make a gesture of disgust when he failed in certain performances. More frequently, however, he was inclined to ready laughter and appeared easily amused by certain remarks and procedures.

Though unable to express himself, inner thinking appeared to harmonize with the situation. His mimicry and gestures were consonant with his apparent understanding of success and failure.

This general behavior would indicate a better mental capacity than was revealed by the intelligence tests. It is likely that these tests, which are dependent on verbalization, yielded a result lower than the deportment and conduct would indicate; also it is possible that emotional responses and cooperation may take place even with serious intellectual impairment.

The contrast between the serious personality disorder manifest at home and the apparently winsome personality in the hospital indicates the profound influence of the environment on behavior. It shows also that the deficit in what is expected may decide the behavior response. At home the patient, though an invalid, was still the head of the house; he could see difficulties and problems, or they were brought to his notice. As head of the house, he was expected to correct and supervise. Unable to perform this function, he would express disgust and explode angrily at the children. Such outbursts were the external evidence of being exasperated with his own helplessness. In the hospital his maximum duty was to take orders and cooperate. As he could perform this duty well, he was looked on as an ideal patient. His ability to perform what was expected evoked self satisfaction and made him a contented patient.

The rather free emotional display referred to as hyperpathy by Schilder [8] has been ascribed to a lesion in the pathways between the frontal lobe and the supramarginal gyrus.

The serious loss of intelligence revealed by the psychologic tests is explained by the total amount of brain tissue damaged plus the fact that the atrophy was in the dominant left hemisphere. As Weisenburg [9] has pointed out, patients who have had cerebral vascular accidents in the left hemisphere show more intellectual loss than those who have suffered a corresponding lesion in the right hemisphere. Apparently that portion of the brain entrusted with the responsibility of speech control has developed a more important intellectual function.

Many of the symptoms of this patient were similar to those in a case reported by Wortis.[10] However, his patient was confused and disoriented.

The Aphasia.—The most serious handicap which this patient presented was his inability to use language as a tool of thought. He would attempt to express himself in response to a question, but at first he would emit a sound which might be translated as "petee peton —petee, peton." Whatever he had intended to say was expressed only by the constant repetition of the words "petee, peton." The exact meaning of these sounds

Fig. 2.—Lateral encephalogram. The markedly dilated left ventricle can be seen superimposed on the smaller right ventricle.

never came to light. The difficulty was not only with speaking; there was a corresponding inability to read and write; for example, if a simple command was written on a card, such as "raise your hand," he would

8. Schilder, Paul: Localization of the Body Image, A. Research Nerv. & Ment. Dis., Proc. **13:** 466, 1932.
9. Weisenburg, T. H.: The Study of Aphasia, Arch. Neurol. & Psychiat. **31:** 1 (Jan.) 1934.
10. Wortis, Herman: Ligation of the Common Carotid Artery, Arch. Neurol. & Psychiat. **36:** 894 (Oct.) 1936.

glance at the letters, run his fingers across them, smile and perhaps utter his usual "petee, peton" but would not understand the order. He was able to see, and did not show a primary visual defect, for he could recognize familiar objects; for example, if he was shown a picture of a street scene or instructed to point to an automobile, a tree or a child, he would do so promptly,

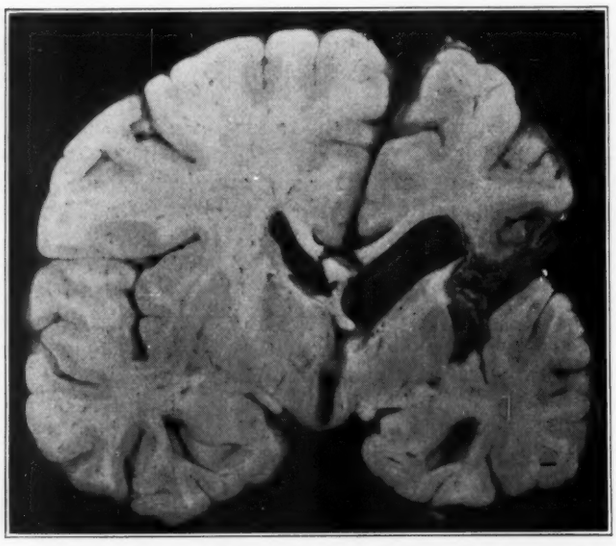

Fig. 3—Coronal section of the brain, showing severe atrophy of the left half with compensatory dilatation of the left lateral ventricle. Severe necrosis can be seen in the lower portion of the cortex at the island of Reil.

correctly and with a joyous expression at his successful performance. Writing was markedly restricted. He was able to write only his own name and a few numbers. Although he showed this serious expressive impairment, the receptive side of speech was better preserved. If he was asked a simple question, he would understand it and reply with a gesture of his head. If a written command, such as "raise your hand," was ignored and then spoken, he would respond quickly.

The preservation of the understanding of the spoken word has an anatomic basis, as can be seen in figure 3. The temporal lobe is little affected. The first temporal convolution (Heschl) is the center for the understanding of the spoken word. The intactness of this convolution in our case may be ascribed to the fact that some blood, sufficient to supply the superior temporal convolution, had reached this region by way of the anterior communicating artery to the middle cerebral artery. Also, as pointed out by Davison, Goodhart and Needles,[11] the function of the temporal convolution may have been maintained through an adequate collateral blood supply by the anastomotic branch of the posterior cerebral artery. Apparently the blood supply to this region was sufficient. The serious loss of the ability to read (alexia) is ascribed to damage of the angular gyrus. The agraphia was probably due to the general cerebral damage.

It may be interesting to point out that though the patient had marked difficulty in understanding words he seemed to enjoy melodies. His chief activity was to listen to the radio, and he would show by gestures that he enjoyed certain familiar arias.

Another explanation for the striking difference between his ability to understand the spoken word and his utter failure to comprehend the written word may be on a learning basis. A child learns the meaning of spoken words early, whereas it is not until the age of 6 years or later that he begins to read. Apparently learning to read is a more complex mechanism and requires a more developed cortex than is present at the age of 1 or 2 years. On the basis of the development, it would be logical to expect that certain damage to the brain may cause alexia without producing sensory aphasia. This theory may be appropriate for our problem, though the observation is not uniform in other cases of aphasia. This view is explained in the thesis of Weisenburg[9] "In some patients the relatively simple expressive mechanism or receptive function seemed to be more disturbed than the higher and more complicated aspects of the language process." The problem as to whether the difference in the understanding of the written and the spoken word is due to a focal or a mass lesion is reflected in the literature on the subject. The opinion was expressed by Orton[12] that the entire brain is concerned in the production of speech, and he discouraged the tendency to exact localization. This concept was well explained by Schilder, who emphasized the view that function may be the result of the total action of the brain, whereas a loss of function may result from a single focal lesion. A homely and simple parallel may be offered in a study of the function of a chain. Obviously the actual pulling power of a chain is dependent on the total action of all the links. Yet the loss of a single link may completely disturb the entire function.

The attempt was made to improve the patient's speech through training, and some progress was made. In the course of months the patient learned to count 1, 2, 3, to pronounced the vowels a, e, i, o, u and to say O. K. However, after having reached this stage in the first six months, he did not achieve further advances. Apparently the amount of brain substance lost could not be compensated for.

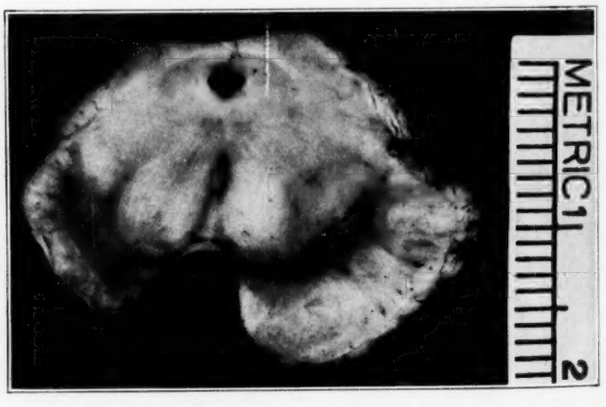

Fig. 4.—Section through the brain stem at the level of the aqueduct of Sylvius. Note the marked asymmetry of the cerebral peduncle secondary to the brain lesion.

The Convulsions.—A third serious symptom was epilepsy. The patient had never suffered attacks prior to the ligation but had some six convulsive seizures afterward. As well as one could determine these were generalized, and the patient gave no sign to indicate an aura nor was there a typical sequence, as occurs in jacksonian epilepsy. After treatment was started the patient was given phenobarbital, with a reduction in

11. Davison, Charles; Goodhart, S. P., and Needles, William: Cerebral Localization in Cerebrovascular Disease, A. Research Nerv. & Ment. Dis., Proc. **13**: 435, 1932.

12. Orton, S. T.: Some Studies in Language Function, A. Research Nerv. & Ment. Dis., Proc. **13**: 614, 1932.

the number of seizures. The occurrence of epilepsy shows that not one focus but a mass lesion may serve as a trigger area for attacks.

MECHANISM RESPONSIBLE FOR THE CEREBRAL SYMPTOMS

The clinical symptoms are the result of a loss of function of the left cerebral hemisphere, particularly the frontal and parietal lobes, with serious damage to the precentral and postcentral gyri. The involved area receives its blood supply from the middle cerebral artery entirely. We may reasonably conclude that a sudden loss of circulation resulted in cerebral anemia and subsequent encephalomalacia.

Dorrance,[13] in a comprehensive report dealing with ligation of the great vessels of the neck, mentions four possible mechanisms to explain cerebral catastrophes following the procedure:

1. *Anomalies and Variation in the Circle of Willis.*—The occurrence of cerebral anemia from an occlusion of a large vessel raises the question of the integrity of the anastomotic pathways of the circle of Willis. Theoretically one might postulate that, were the collateral blood supply adequate, no such anemia should result. There are many reports in the literature on the frequency of the peculiarities in the makeup of the blood vessel branches that compose this circle. Among 700 cases, Fawcett and Blackford[14] found a complete symmetrical circle in seventy-three, a complete but asymmetrical circle in thirteen and an incomplete circle in four. Windle,[15] among 200 cases, found a complete circle in eighty-three and an incomplete distribution in seventeen. Busse,[16] in the examination of 400 brains, found no instance in which the anterior communicating artery was missing and stated that when the posterior communicating artery was absent it was usually compensated for by other anastomoses. Homans[17] was unable to find in the literature any instance of death following ligation of the carotid artery in which an anomaly of the circle of Willis was present.

Animal experiments tend to show fairly free anastomosis in the brain. Friedemann and Elkeles[18] perfused dye materials through each of four nutrient arteries of the dog's brain while three others were tied and found all parts of the brain uniformly stained. Pilcher and Thuss used differences in arteriovenous oxygen tension to determine the effect of ligation of the great vessels on the cerebral flow of blood in dogs. They found no great differences until both carotid arteries were nearly occluded.

With reference to the intactness of the circle of Willis, it may be stated that the branches are of markedly different size. Whereas there is anatomic continuity between the vessels, the marked angularity and the different caliber of the vessels may be responsible for a reduced flow of blood in certain fractions of the brain; for example, the lumen of the middle cerebral artery appears as a direct continuation of the internal carotid artery. The posterior communicating artery is frequently a narrow vessel joining the middle cerebral artery at right angles. The amount of blood which could enter the large middle cerebral artery may be inadequate, particularly in a person whose effective blood volume has already been seriously reduced by hemorrhage. The volume which could enter the cortical substance, therefore, by a collateral route may not be sufficient, as the circle of Willis resembles a hexagon of vessels of different caliber.

2. *Thrombosis and Embolism.*—Retrograde thrombosis or embolism from the side of ligation is another possibility which has been mentioned. In certain cases

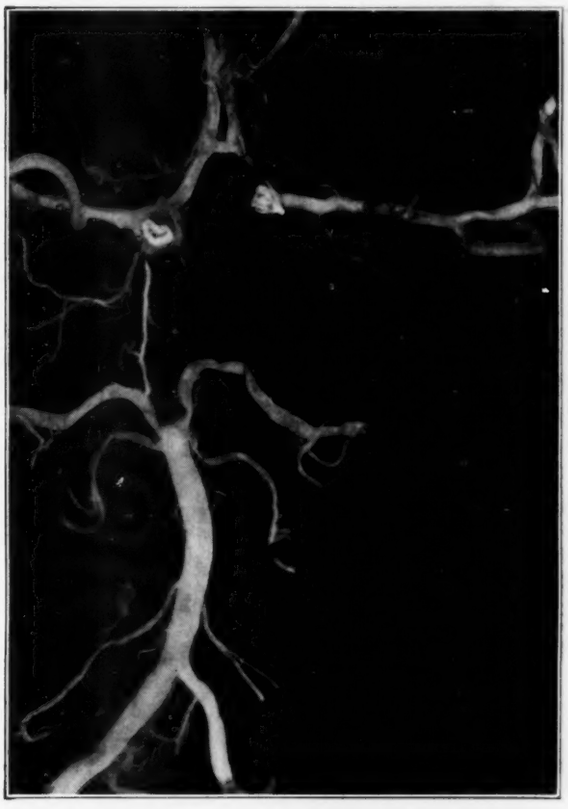

Fig. 5.—The dissected circle of Willis, showing the obliterated lumen of the left internal carotid artery, the thickening of the right internal carotid artery and particularly the absence of the left posterior communicating artery. The basilar artery is larger than usual (compensation).

a progressive advance of a clot along the occluding vessel may be responsible for anemia of the cortex.

3. *Stimulation of the Cervical Sympathetic Trunks.*—Ligation of the common carotid artery necessarily causes stimulation of the vasoconstrictor fibers accompanying this vessel. The possibility also exists that a sudden vasospasm results in cerebral anemia.

4. *Stimulation of the Carotid Sinus.*—Another contributing factor is the disorder resulting from stimulation of the carotid sinus. This area in the bifurcation of the common carotid artery is extremely sensitive to intravascular pressure. Compression of the sinus or a rise in intravascular tension causes vagal impulses which reflexly may produce slowing of the heart rate, fall in blood pressure or direct sinocerebral impulses leading to a reduction in the cortical flow of blood. Stimulation of the carotid sinus in the normal person often leads to sudden syncope (Weiss and Baker[19]).

In our case many factors were present, any one or a combination of which may have contributed to the

13. Dorrance, G. M.: Ligation of the Great Vessels of the Neck, Ann. Surg. **99:** 721 (May) 1934. (The article contains a comprehensive review of the literature.)
14. Fawcett, E., and Blackford, J. V.: The Circle of Willis, J. Anat. & Physiol. **40:** 65, 1905-1906.
15. Windle, B. C. A.: On the Arteries Forming the Circle of Willis, J. Anat. & Physiol. **22:** 289, 1887.
16. Busse, O.: Virchows Arch. f. path. Anat. **229:** 178, 1921, cited by Dorrance.[13]
17. Homans, J.: Accidents and Precautions in Ligation of the Common Carotid Artery, Ann. Surg. **71:** 707 (June) 1920.
18. Friedemann, U. S., and Elkeles, A.: Experimental Interruption of Blood Circulation in the Brain, Klin. Wchnschr. **10:** 2249 (Dec. 5) 1931.
19. Weiss, Soma, and Baker, J. P.: The Carotid Sinus Reflex in Health and Disease, Medicine **12:** 297 (Sept.) 1933.

serious sequelae of the ligation. These factors include the severe anemia resulting from sustained hemorrhage, the low blood pressure with mild shock prior to operation, the lack of time to perform preoperative compression of the carotid arteries, the absence of the posterior communicating artery on the affected side and the mild arteriosclerosis of the larger cerebral vessels. It is our opinion that the loss of cerebral function resulted from sudden anemia due to tying of the artery, with two causes responsible for the insufficient anastomotic blood supply. The basic defect was structural—the general arteriosclerosis with narrowing of the lumen and the absence of the posterior communicating artery —the contributing physiologic factors were the severe anemia and the low generalized blood pressure.

PRACTICAL SUGGESTIONS

In view of the high immediate mortality and the possibility of serious cerebral complications subsequently, ligation of the carotid arteries constitutes a most hazardous procedure even in the severest forms of nasal hemorrhage. From a neurologic point of view we would emphatically endorse the practice recommended by Johnson and Foster [20] and by Strauss,[21] of ligation of the external carotid artery only. They based their procedure in the control of severe intractable nasal hemorrhages on the fact that the major blood supply to the nose comes only from branches of that artery. The small anterior and posterior ethmoid branches of the ophthalmic vessels and perhaps a few slight twigs perforating the cribriform plate come from the internal carotid artery. Thus, from the theoretical standpoint as well as from the neurologic aspect such a procedure promises best results with a minimum of danger. That this point of view is sound may be inferred from Jackson's [22] report of ligation of the external carotid artery in thirty-eight cases, with effective control of hemorrhage and without cerebral complication. In cases of intracranial arteriovenous aneurysm Dorrance and Houdenslager [23] recommended tying of the common carotid artery as a better procedure than ligating the internal. They pointed out that there ultimately may be a collateral supply from the external carotid artery.

CONCLUSIONS

Following ligation of the left external and internal carotid arteries the major symptoms were hemiplegia, hemianesthesia, aphasia, convulsions and impairment of intelligence. The anatomic basis for the symptoms was marked atrophy of the left hemisphere, particularly in the parietal areas and the structures supplied by the middle cerebral artery. For the physiopathologic basis of the cerebral lesion several factors were found, including arteriosclerosis, absence of the posterior communicating artery and severe general anemia prior to ligation.

This case offers strong support to the practical suggestion that in cases of intractable nasal hemorrhage otherwise uncontrollable only the external carotid artery be ligated.

10465 Carnegie Avenue.

20. Johnson, M. C., and Foster, M. E.: Ligation of the External Carotid Artery for Traumatic Nasal Hemorrhage, Ann. Otol., Rhin. & Laryng. **42**: 588 (June) 1933.
21. Strauss, Abraham: Epistaxis in Pregnancy Requiring Ligation of the External Carotid: Review and Case Report, Ann. Otol., Rhin. & Laryng. **42**: 230 (March) 1933.
22. Jackson, Chevalier, cited by Strauss [21]
23. Dorrance, G. M., and Houdenslager, P. E.: The Physiological Considerations in the Treatment of Pulsating Exophthalmos, Am. J. Ophth. **17**: 1099 (Dec.) 1934.

THE CEMENT BURN

ITS ETIOLOGY, PATHOLOGY AND TREATMENT

J. MINTON MEHERIN, M.D.
AND
THEODORE P. SCHOMAKER, M.D.
SAN FRANCISCO

In the past few years the importance of the subject of cement burns has again been forcibly brought to attention as a result of the vast building enterprises that have been undertaken.

In projects that involve the use of large quantities of concrete the medical profession, the employer and the employee are constantly confronted with the problem of the cement or concrete burn.

The lesion is an important one because of the economic loss to the employer and the employee. The literature contains but meager information concerning this type of burn. This is true not only as to its etiology and pathology but likewise as to its treatment, which in some instances is predicated on hazy or even erroneous fundamental chemical principles.

The composition of Portland cement and of concrete is shown in table 1.

It is shown that, in these percentage compositions of cement and concrete, calcium oxide or lime forms by far the major portion of cement, and it is this substance with which we are primarily concerned. When cement is mixed with sand, gravel and water to form concrete, the alkaline reaction is diluted only by the bulk of the other relatively inert substances. As determined colorimetrically,[1] the p_H of these samples of cement in solution varies between 11.5 and 12, which is well on the alkaline side.

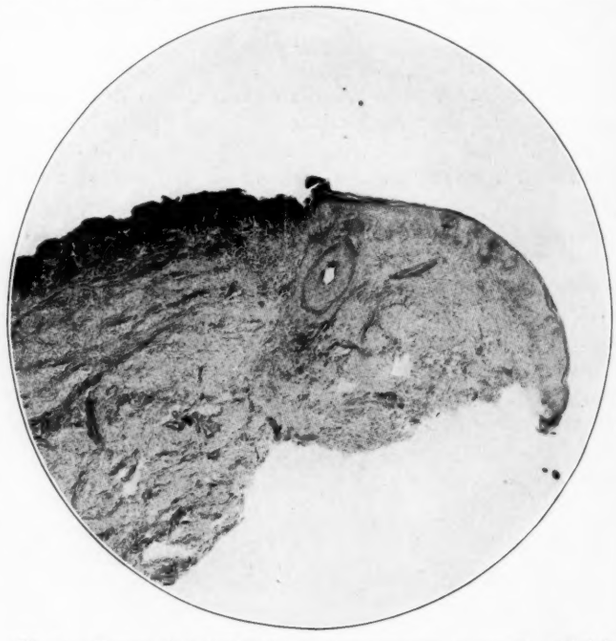

Fig. 1.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 7 diameters.

PATHOLOGIC CHANGES

In general, in the action of corrosives [2] destruction of tissue is preceded by an inflammatory reaction. Pathologically, chemical cauterization shows three distinct

From the Department of Surgery, Stanford University School of Medicine.

1. Determinations were made by Maurice Tainter, Department of Pharmacology, Stanford University School of Medicine.
2. Sollmann, Torald: A Manual of Pharmacology, ed. 4, Philadelphia, W. B. Saunders Company, 1932, pp. 186-187.

areas: (1) an area of inflammation and hyperemia at the periphery and in the depth of the involved tissue; (2) a layer of necrosis which follows the inflammatory action; (3) a layer in which the chemical cauterization results in a solution of the cells already killed by the inflammatory process. These three—hyperemia,

Fig. 2.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 80 diameters.

inflammatory necrosis and chemical solution—are to be considered as successive stages of the same action.

A scab is formed after corrosion by the coagulation of the inflammatory exudate and by the chemical products (mostly albuminates) resulting from the interaction of the corrosive agent with this exudate and with killed cells. Alkaline corrosives combine with the tissues to form chiefly alkaline albuminates or with fats to form soaps and in this way produce tissue destruction. These corrosives are very hygroscopic and withdraw water from the cells. This further contributes to the necrosis.

Peculiar to alkalis the scab formed is soft, since the resulting compounds are soluble and thus the chemical readily further penetrates into the tissues, spreading and extending deeply.

In the case of cement we are dealing with five definite factors in the production of the burn:

1. Abrasive action of the concrete.
2. Friction made by wearing apparel and the rubbing of contiguous anatomic parts.
3. Heat of solution while slaking, which, however, is a minor factor.
4. The hygroscopic action of lime with its consequent cellular destruction.
5. Its corrosive action as an alkali. Since the alkaline albuminates are soluble in the alkalis, they are redissolved and reprecipitated so that destruction continues until the alkali is dissipated. In contradistinction, acid burns are practically self limiting, since the acid albuminates formed are insoluble in acids.

The pathologic picture of the cement or concrete burn is clearly shown in the accompanying illustrations. These biopsies were made at intervals of approximately twelve, forty-eight and seventy-two hours after the patient had been burned with concrete.

In figure 1, twelve hours after exposure to concrete, one sees a loss of epithelium down to the corium with some edema of the subcutaneous fibrous tissue. A portion of normal skin is also shown.

Figure 2, a higher magnification of figure 1, shows the marked cellular infiltration about a sweat gland. Note the extent of the subcutaneous edema even after

TABLE 1.—*Definitions or Composition of Portland Cement and of Concrete*

Portland cement:	
Silica (SiO_2)	22 %
Alumina (Al_2O_3)	7½ %
Iron oxide (Fe_2O_3)	2½ %
Lime (CaO)	62 %
Magnesia (MgO)	2½ %
Sulfur trioxide	1½ %
Loss on ignition	2 %
Concrete (all proportions are by weight):	
Sand	29 %
Gravel	55 %
Water	8 %
Cement	8 %

so short a time. There is one area of round cells around a hair follicle, but most of the infiltration follows along the sweat glands to their bases.

The epithelium, which has been destroyed down to the corium, has been replaced by a pseudodiphtheritic membrane in which are found inclusions of amorphous substances, supposedly calcium.

Figure 3 is a still higher magnification of figure 1, showing the necrotic pseudomembrane with amorphous

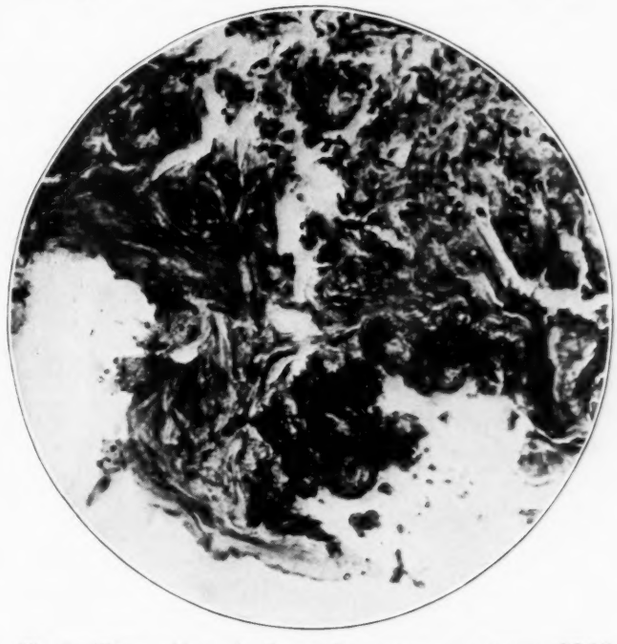

Fig. 3.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 450 diameters.

material on the surface and needle-like crystals extending into the necrotic tissue.

Figure 4 shows the formation of a bleb beneath the pseudodiphtheritic membrane, approximately two days after exposure to concrete. The necrosis is extending deeper into the corium and there is a small abscess about a sweat gland.

Figure 5 shows the effect of concrete on human skin three days after exposure. Note how the necrosis has spread so that it now extends into the subcutaneous tissue. The black isolated and conglomerate areas to

the left are calcium deposits. Note the depth at which these lie and the halos of necrosis about them. To the right the calcium deposits with their areas of necrosis can be seen extending into the subcutaneous tissues.

Figure 6 is a higher magnification of a portion of figure 5, showing these amorphous calcium deposits surrounded by necrosing round cell infiltration. We

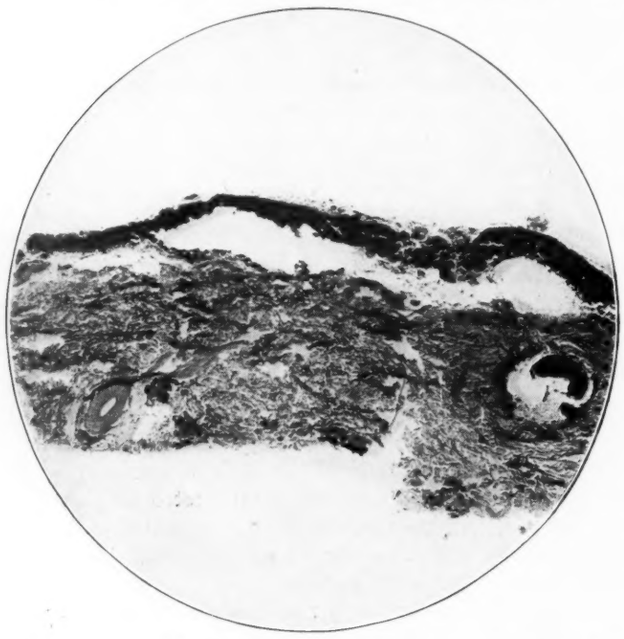

Fig. 4.—Human skin two days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 15 diameters.

believe from their location and configuration that these deposits are probably in the sweat glands.

Figure 7 is an oil immersion view of the calcium deposits deep in the tissues.

ANALYSIS OF CASES

In a period of approximately a year and a half sixty cement burns have come under our care. These cases are analyzed in table 2.

It is seen that a relatively long interval elapses between the onset of symptoms and the time of application for medical treatment. The symptom that eventually brings patients with this condition to the doctor's office is pain. This latent period in the manifestation of pain is typical of burns even from concentrated alkalis. Once the caustic action has begun, the persistence of pain is likewise typical of these burns.

The usual site of such cement burns is the dorsum of the feet, the malleoli, the popliteal spaces, the wrists, the hands and the contiguous surfaces of the fingers. Since cement workers usually wear high boots and gloves, such burns occur most frequently at the sites of friction, proving that the abrasive action of the concrete is by no means a negligible factor in the production of the lime burn.

Attention is called to the relatively high incidence of infections (20 per cent) complicating cement burns. The time that elapses between the onset of symptoms and the application for treatment apparently plays no part in deciding ultimately whether infection will take place or not.

It is a well known fact that a common cause of disability among cement workers is furunculosis, far outranking all the other disabling cutaneous diseases in this industry. Such infections are caused primarily by a clogging of the sweat glands with lime. Dust, body débris and bacteria are then rubbed into the sweat glands, secondarily producing an infection. An ideal culture medium for such bacteria located deep within the sweat glands is furnished by the products resulting from the corrosive action.

As a result of the warmth furnished by the bandaging of such burned areas and as a result of the sweating that takes place beneath these bandages, it is not unusual to have furuncles develop in neighboring hair follicles while the patient is under treatment. Particularly is this true when the bandage is held in place by the ill advised use of adhesive plaster against the skin in the dressing of such wounds.

TABLE 2.—*Analysis of Sixty Cases*

Number of cases	60	
Average interval between onset of symptoms and application for medical treatment (longest interval 7 days, shortest 8 hours)	3	days
Disability	642	days
Average per case	10	days
Treatment period	857	days
Average per case	14	days
Number of cases requiring hospitalization	7	
Average stay in hospital per case	8	days
Percentage of total cases requiring hospitalization	11	
Number hospitalized due to infection	6	
Number of cases infected	13	
Percentage of total cases infected	20	

TREATMENT

Such burns are preventable, but it is difficult to preach prophylaxis to employers other than on a dollars and cents basis. The sixty cement burns that we have treated in the past year and a half involved a total loss of time of 642 working days with an average disability of ten days per case. The average total cost per case approximated $50.

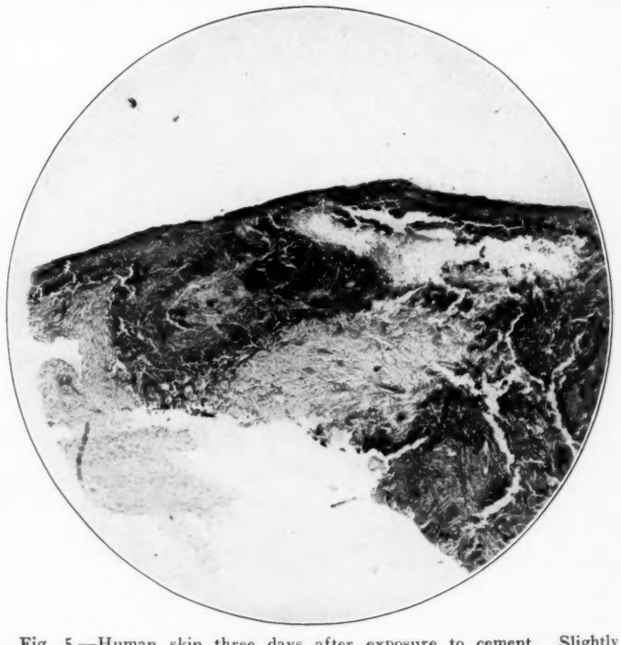

Fig. 5.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 15 diameters.

Smearing of the parts most frequently exposed with petrolatum has been shown by experience to be somewhat unpractical though effective. It is especially effective when the dry cement is being handled. Clean

dry boots and gloves, freqently changed, reduce considerably the morbidity caused by these lesions.

The installation of showers and compulsory bathing by men coming off a shift would be most desirable. Such lavage would abort many of the cases entirely, and in those cases in which corrosion has already started it would greatly decrease the depth and extent

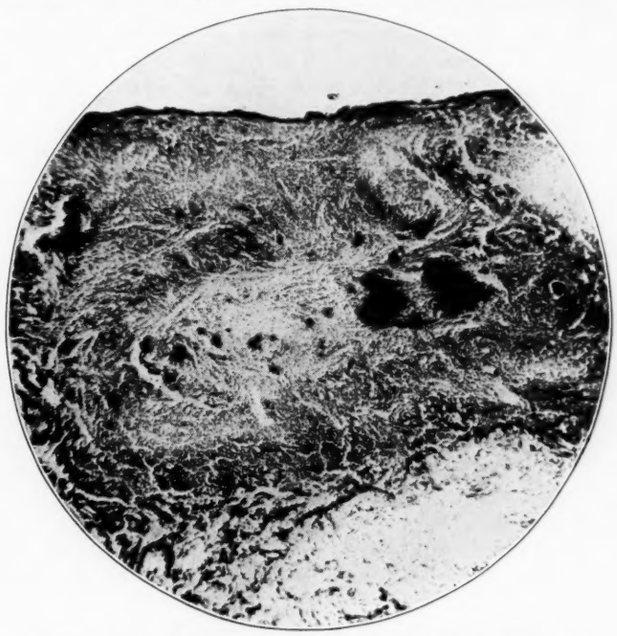

Fig. 6.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 80 diameters.

of the burn and probably call the lesion immediately to the patient's attention.

After the symptoms have begun to manifest themselves one would imagine the ideal immediate treatment to be the chemical neutralization of the offending agent. Ample proof to the contrary is furnished by the experimental work of Davidson.[3]

One lower extremity of a group of rats was exposed to both strong acids and strong alkalis. In control rats untreated after exposure typical corrosive burns shortly developed at the exposed site, with loss of function of the extremity, and the rats died. Others treated by chemical neutralization shared the same fate, the clinical picture and course of the burn differing only slightly from those which were untreated. Possibly the heat of chemical neutralization is as damaging to the tissues as is the irritant action of the offending agent.

A third group of rats similarly exposed to acids and alkalis were simply treated by thorough lavage with water. These animals showed a minimum of gross pathologic changes. No disability of the extremity ensued and all survived.

The first requisite for immediate treatment then is lavage with water. Practically, however, this principle is not applicable except prophylactically. By the time these patients present themselves to the surgeon an elastic grayish brown crust has already formed, covering an ulceration varying in extent and depth depending on the quantity of cement to which the skin has been exposed. By the third day, when these cases are usually first seen, this scab is extremely tenacious and firmly adherent to the underlying tissue.

3. Davidson, E. D.: The Treatment of Acid and Alkali Burns, Ann. Surg. **85**: 481 (April) 1927.

Even after an elapsed interval of three days, necrosis undoubtedly continues further, as shown in figure 5. Theoretically it would be desirable to cleanse the burned areas by vigorous scrubbing in order to remove the collection of cellular débris, coagulated serum and cement which constitute the scab. This is not practical since the necrosed areas, though isolated and usually not covering an area greater in size than 2 square inches, are in most cases multiple. Such mechanical scrubbing, however desirable, would require general anesthesia even in the case of small single burns, since infiltration with a local anesthetic in such potentially infected areas is contraindicated. We have tried topical application of procaine hydrochloride, cocaine and the like but have found them ineffective, since these solutions do not penetrate the scab.

These lesions are not amenable to the tannic acid, gentian violet or silver nitrate treatment which has been so generally applied to the thermal burn. In would be undesirable to seal over such areas with a crust not only because of the danger of infection but also because the offending chemicals would be further sealed in the tissues. Serious toxic symptoms have not developed in our cases, since the burned areas, though multiple, did not cover large areas.

The application of a soothing ointment usually loosens the crusts within twenty-four hours, leaving a fairly clean, ragged ulcer. In truth, at the time that such cases come to our notice we are confronted not so much with a burn as we are with an acute ulcer.

Further treatment following removal of the scab then involves the treatment of a simple, acute ulcer, provided

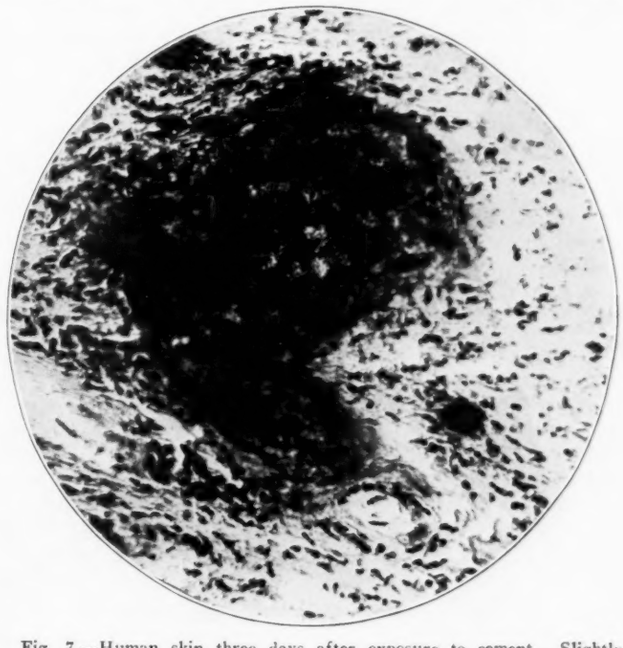

Fig. 7.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 960 diameters.

infection does not supervene. Once clean granulations appear, the use of cod liver oil in an ointment has proved satisfactory.

CONCLUSIONS

1. Cement burns are theoretically preventable.
2. Sixty cement burns were treated in the past year and a half, resulting in a loss of 642 working days.
3. Cement burns differ markedly from thermal and acid burns from the standpoint of the symptoms,

pathologic changes and treatment in that the alkaline albuminates are soluble in the alkalis and are thus redissolved and reprecipitated; the chemical meanwhile penetrates and extends deeply into the tissues until it is entirely dissipated.

4. In 20 per cent of our cases infection developed, showing a marked susceptibility to this complicating factor in such lesions.

5. After the removal of the thick, tenacious crust, further treatment involves the care of the resulting simple acute ulcer.

6. Prophylaxis consists in thorough lavage of the exposed parts with water immediately following exposure to cement or concrete and the smearing of the frequently involved parts with a heavy petrolatum ointment.

350 Post Street.

CYSTITIS FOLLICULARIS

WITH A DISCUSSION OF THE OTHER PROLIFERATIVE LESIONS OF THE BLADDER AND REPORT OF FOUR CASES

W. CALHOUN STIRLING, M.D.

WASHINGTON, D. C.

Among the more rare types of inflammatory lesions in the chronic cystitis group is the proliferative lesion which presents sufficient vesical manifestation to warrant a careful report of the cystoscopic and microscopic observations. It is of general clinical interest, owing to the fact that hematuria is so outstanding.

CLASSIFICATION

In cystitis follicularis the mucosa of the bladder is studded with nodules of various sizes, containing lymph follicles with germinal centers. Hinman and his associates [1] gave an excellent description of these proliferative lesions and divided them into six groups: granular, glandular, follicular, cystic and emphysematous cystitis and bullous edema. Prior to this classification little attempt had been made to group properly these unusual lesions of the bladder. Livermore,[2] quoting White and Martin, classified these epithelial cysts clinically as large and small. He reported a case in which the cyst had assumed a rather large size. Despite Hinman's [1] broad classification, some present day writers are still prone to group these lesions under confusing headings. Redewill [3] expressed the belief that many lesions formerly diagnosed as bullous edema and cystitis cystica were minute gas cysts, i. e. cystitis emphysematosa. Levin [4] reported a case of gas cysts in the bladder resulting from Bacillus welchii in a diabetic patient. Sanes and Doroshow [5] reported two cases of similar involvement, one that of a diabetic person. In all of these cases of gas cysts Bacillus coli was found, and Nowicki [6] said this organism is the cause of cystitis emphysematosa. Paschkis [7] was one of the first to point out that pyelitis follicularis and pyelitis granulosa were separate disease entities. He described two types, the first containing actual lymph nodes with all their characteristics and the second showing aggregations of round cells of inflammatory origin. (Having made similar observations in two of my cases, I can substantiate this point.) Zuckerkandl [8] also described a true and a false type. In the former the lymph follicles are rounded, the peripheral cells being closely crowded together in rows with typical germinal centers. The second form is cystitis pseudofollicularis, with no germinal centers and the cellular arrangement widely distributed and showing no palisading of cells at the periphery. Colonel Ash and I recently saw some specimens removed at biopsy in a case in which a diagnosis of malignant growth of the bladder had been made elsewhere, and our study showed a histologic picture not unlike that of cystitis pseudofollicularis. Several nodules were observed in the mucosa of the bladder and on biopsy were seen to contain a large number of lymphocytes, with no evidence of the typical cellular arrangement of cystitis follicularis or of germinal centers.

Another and more destructive form of cystitis is the gangrenous type, characterized by total destruction of the mucosa of the bladder. Two cases of this type were observed and reported by Hopkins and me [9] in 1934.

This study comprises four cases of proliferative lesions of the bladder, in the first one of which there was a unique histologic picture of cystitis follicularis, cystitis cystica and cystitis glandularis concomitant with pyelo-ureterocystitis follicularis. The second case was one of primary cystitis follicularis without apparent involvement of the kidneys or ureters. (These observations, to my mind, refute the statement of Baetzner [10]

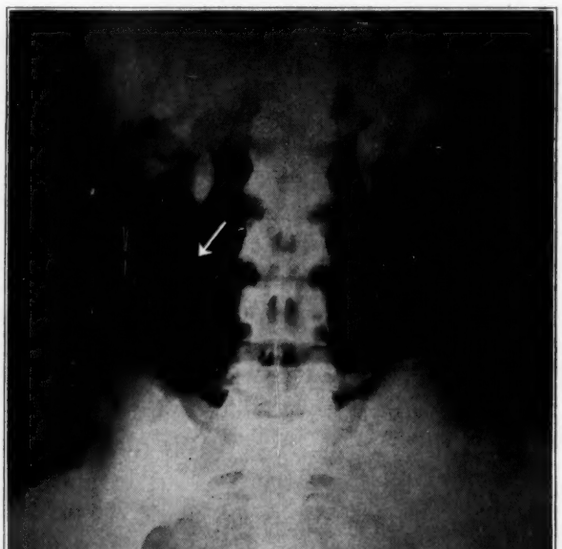

Fig. 1 (case 1).—Intravenous urogram showing a filling defect below the right ureteropelvic junction. This was a constant observation on every pyelogram. A nest of gallstones appears just above and lateral to the upper right calix.

Drs. Ash, Cajigas and Jarman gave valuable assistance in the study of the cases reported.

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2. Livermore, G. R.: Cyst of the Bladder, Tr. Am. A. Genito-Urin. Surgeons **28**: 209-215, 1935.
3. Redewill, F. H.: Cystitis Cystica Emphysematosa, Urol. & Cutan. Rev. **38**: 537-543 (Aug.) 1934.
4. Levin, H. A.: Gas Cysts of Urinary Bladder, J. Urol. **39**: 45-52 (Jan.) 1938.
5. Sanes, S., and Doroshow, G. D.: Cystitis Emphysematosa, J. Urol. **32**: 278-286 (Sept.) 1934.
6. Nowicki, W.: Ueber Hamblasenemphysem, Arch. f. path. Anat. **205**: 126, 1914.
7. Paschkis, R.: Beiträge zur Pathologie des Nierenbickens, Folia urolog. **7**: 55, 1912.
8. Zuckerkandl, O.: Ueber die sog, Cystisis cystica und über einen Fall von cystischen Papillom der Hamblase, Monatsb. f. urol. **7**: 521, 1902.
9. Stirling, W. Calhoun, and Hopkins, G. A.: Gangrene of the Bladder: Report of Two Cases, J. Urol. **31**: 517-525 (April) 1934.
10. Baetzner, W.: Beitrag zur Kenntnis der Pyelitis granulosa, Ztschr. f. urol. Chir. **1**: 285-294, 1913.

that the process is always initiated in the renal pelvis and extends downward through the ureters to the bladder.) The third case presents an interesting histologic study of lesions of the bladder, in that cystitis follicularis and cystitis glandularis were found present in the same specimen. The fourth was an instance of cystitis granulosa simulating a vesical neoplasm.

Fig. 2 (case 1).—Cystoscopic appearance of the bladder, showing the distribution of the nodules in cystitis follicularis. Just below the left ureteral orifice is seen the larger nodule (*A*) representing cystitis cystica.

In 1913 Kretschmer [11] reported a case of pyelitis follicularis. Hundley and Carson [12] in 1929 reported three additional cases. In two of these the diagnosis was made after the kidneys had been removed for tuberculosis, and in the third it was made at necropsy. They mentioned prolonged intermittent hematuria as an outstanding symptom. I have reviewed the literature since that time and have found but ten cases, in all of which diagnosis was made either after the kidney had been removed because of bleeding or at necropsy.

Before Hinman and Cordonnier [13] presented their report in 1935, but little had been written on this subject. Since that time I have been unable to find any reports of similar involvement in the literature. A total of only eleven cases of pyelitis follicularis are on record. Loewenhardt [14] and Kretschmer [11] were the first to report single cases of cystitis follicularis. In 1935 Hinman and Cordonnier [13] reported five cases in which the diagnosis was made from specimens removed for biopsy from the mucosa of the bladder. This made a total of eight cases of proved cystitis follicularis on record. In the cases reported by Loewenhardt,[14] Kretschmer [11] and Hundley and Carson,[12] in which the bladder was involved, similar lesions were seen also in the kidneys.

ETIOLOGY

The cause of this type of lymphoid hyperplasia of the bladder is still unknown, although it is probably the result of a long-standing infection. Loewenhardt [14] mentioned syphilis as a factor, whereas Baetzner [10] expressed the belief that typhoid is responsible in some cases. Von Frisch [15] expressed the opinion that gonorrhea must be considered. Symmers [16] described their formation as a response of the tissues to a toxic irritant and cited tuberculosis as a good example of toxic lymphoid hyperplasia. None of these diseases were present, however, in my four cases. The colon bacillus was found in urine from the bladder in all of the cases reported in the literature and was also present in my cases. Alexander [17] mentioned cystitis resulting from stone, from stricture and from tuberculosis as capable of producing lymphoid tissue in the bladder. Other observers have found similar lesions in the renal pelvis after the removal of a stone. Cystitis granulosa is seen more often than any other proliferative lesion and is the result of a long-standing irritation of the bladder.

SYMPTOMS

Disturbance of urination is the only characteristic symptom observed in this condition. Frequency, urgency or burning on urination is present, and pain over the bladder is constant. The vesical tenesmus is as severe as that seen in tuberculosis or interstitial cystitis. Massive hematuria has been a symptom in all but one of the cases of pyelitis follicularis, as well as in most of those of cystitis emphysematosa reported, but was present in only one of the cases of cystitis follicularis reported by Hinman.[1] It was present in but two of my cases, one in which the renal pelvis and ureters were involved and the other the case of cystitis granulosa which had become ulcerated.

Pain in the costovertebral angle and bilateral ureteral pain simulating the passage of blood clots was observed in one case. Women are more prone to this condition

Fig. 3 (case 1).—Bilateral retrograde pyelogram showing the same filling defect in the right ureter as seen in figure 1. These defects are indicated by the arrow. Other filling defects may be noted in the lower part of the right ureter, as indicated by the smaller arrows. Marked ureterectasis is present in the middle third.

than men (6 to 1), owing probably to the frequency of cystitis in women. It occurs during every decade, though most often during the fourth.

DIAGNOSIS

Cystitis follicularis cannot always be differentiated from the other proliferative types of cystitis clinically, and the possibility of two distinct lesions of a similar etiologic background in the same patient must always

11. Kretschmer, H. L.: Pyelitis Follicularis, Tr. Am. Urol. A. **7:** 94-104, 1913.
12. Hundley, J. M., Jr., and Carson, W. J.: Pyelitis Follicularis, J. Urol. **21:** 341-351 (March) 1929.
13. Hinman, Frank, and Cordonnier, Justin: Cystitis Follicularis, J. Urol. **34:** 302-308 (Oct.) 1935.
14. Loewenhardt, F.: Cystitis Follicularis, Arch. f. Dermat. u. Syph. **84:** 395, 1907.
15. von Frisch, A.: Kongress zu Berlin, Verhandl. d. Deutsch. Gesellsch. f. Urol., April 1909.
16. Symmers, Douglas: Relationship of Toxic Lymphoid Hyperplasias to Lymphosarcoma and Allied Diseases, Arch. Int. Med. **21:** 236 (Feb.) 1918.
17. Alexander, S.: Some Observations Respecting Pathology and Pathological Anatomy of Nodular Cystitis, J. Urol. & Genito-Urin. Dis. **2:** 245, 1893.

be considered. Mills[18] said: "Cystitis cystica and granulosa have been confused both clinically and as viewed through the cystoscope. Lautenschlager reported a case as cystitis emphysematosa which later proved to be cystitis granulosa at necropsy." Redewill[3] said that air cystograms are helpful in detecting the presence of general emphysema of the wall of the bladder. The

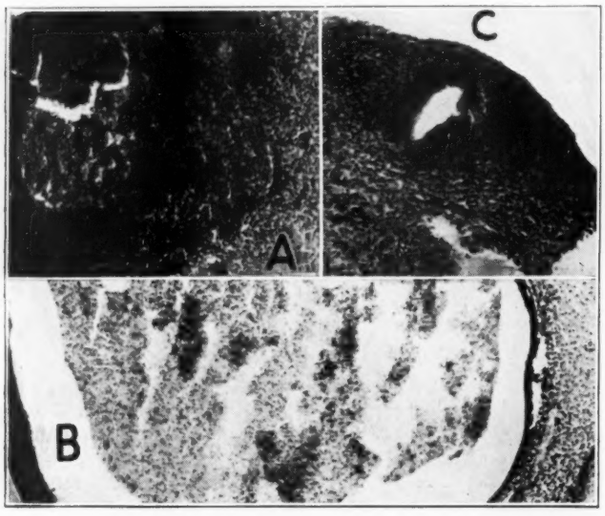

Fig. 4.—Sections showing cystitis follicularis (*A*), cystitis cystica (*B*) and cystitis glandularis (*C*) in the same biopsy specimen. This represents the atypical nodule (*A*) seen in figure 2 (× 70).

final diagnosis must obviously rest on an examination of the specimen removed for biopsy. Cystoscopic examination in cystitis follicularis shows the mucosa of the bladder covered with nodules of varying size, rather closely packed together and of a red-grayish color. They are firm on pressure, whereas in cystitis cystica they are more uneven in size and appear translucent. Cystitis glandularis, on the other hand, rarely presents a distinct cystoscopic picture. The gas filled cysts in cystitis emphysematosa are more translucent than those filled with fluid, and the nodules can be seen best if the bladder is only partially filled with fluid, the nodules appearing in bas-relief. Cystitis granulosa and cystitis polyposa are more easily recognized, owing to the "cluster-like" arrangement of the granulation tissue. Ulceration may occur, as happened in my case, and thus simulate a new growth in the bladder. Newformed capillaries are prominent throughout the loose areolar tissue.

REPORT OF CASES

I wish to analyze briefly four of my cases:

CASE 1.—Mrs. W. D. H., 35 years of age, admitted to Garfield Hospital on June 1, 1937, complaining of intermittent hematuria and pain in the back, had had painless hematuria lasting one week fourteen years before. No further symptoms were noted until two years later, when a similar attack occurred. Since that time she had had intermittent attacks of pain and hematuria three or four times each year. May 31, 1937, the patient had a severe attack of bleeding, with pain on urination and passage of large clots of blood. She consulted her family physician at this time and was sent to the hospital, where she was seen by me for the first time.

A catheterized specimen of urine was grossly bloody, with a large number of clots. A complete study of the blood was done, revealing a moderate degree of anemia with a nonprotein nitrogen content of 65 mg. per hundred cubic centimeters of blood. No blood dyscrasia was present. After evacuation of many blood clots, cystoscopic examination revealed blood coming from the right ureteral orifice. The capacity of the bladder was found to be 400 cc. Urine from the right kidney showed many red and a few white blood cells, and culture showed Staphylococcus albus anhaemolyticus and Staphylococcus aureus anhaemolyticus. The left kidney showed a few white blood cells and an occasional red blood cell. Culture revealed Staphylococcus aureus anhaemolyticus. Intravenously administered indigo carmine was recovered in normal concentration from both sides, with a slight delay on the right. A retrograde pyelogram of the right kidney showed none of the skiodan in the renal pelvis but did show marked dilatation of the upper part of the right ureter. Intravenous pyelographic study was done later and showed some filling defects in the wall of the upper part of the ureter on the right side. A nest of gallstones appeared just above the superior calix (fig. 1). These stones produced so much biliary colic that a cholecystectomy became necessary and was successfully performed.

A second cystoscopic examination November 12 was more satisfactory, as the bleeding had stopped. The entire mucosa of the bladder (fig. 2) was covered by numerous nodules from 1 to 3 mm. in diameter. They were solid and more numerous on the posterior wall. The mucous membrane showed generalized capillary injection. About 1 cm. below and mesial to each ureteral orifice was a group of nodules, different in appearance from those previously described. These were larger, opaque and whitish. Cultures of material from each kidney were negative, although culture of material from the bladder revealed the colon bacillus. The nonprotein nitrogen content of the blood at this time was 45 mg. per hundred cubic centimeters. An intravenous test of renal function was done, with normal appearance time and output on both sides. A retrograde pyelogram (fig. 3) showed moderate pyelectasis on the right side, with marked dilatation and tortuosity of the right ureter. There was some kinking of the ureter just below the right ureteropelvic junction, with a constant filling defect in this area, suggestive of a solitary lymph follicle. Other filling defects were noted in the wall of the lower part of the right ureter. A pyelogram of the left side was normal. The upper part of the ureter, however, appeared slightly irregular.

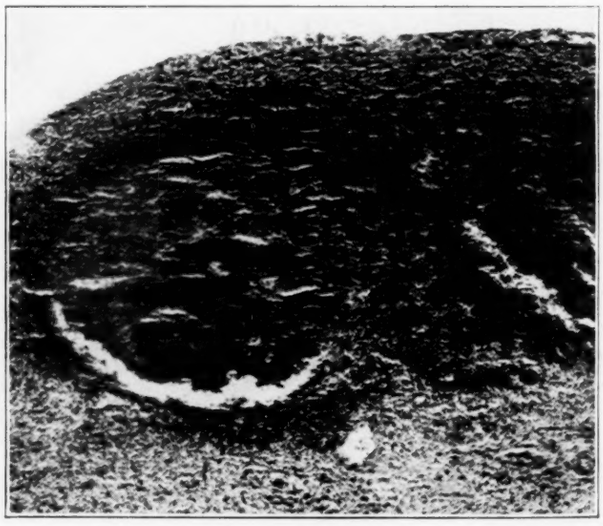

Fig. 5 (case 1).—Section of a typical nodule. This specimen contains four lymphoid follicles; × 75.

The atypical nodule (fig. 4) located 1 cm. below and medial to the left ureteral orifice revealed a large cystlike area covered with intact epithelium. Adjacent to the cyst were a solitary lymph follicle and a gland lined with columnar epithelium. The stroma was made up of densely packed deeply stained small lymphocytes. The center of the nodule appeared less densely packed, with much lighter staining young lymphocytes resembling the typical germinal center seen in the

18. Mills, R. G.: Cystitis Emphysematosa, J. Urol. **24**: 217-231 (Sept.) 1930.

lymphatic structures. Examination of one of the typical nodules (fig. 5), which were numerous, revealed four distinct lymphoid follicles, all of which were covered by mucous membrane. None of these showed evidence of ulceration. The diagnosis was cystitis follicularis associated with cystitis cystica and cystitis glandularis (Col. J. E. Ash and Dr. Tomas Cajigas).

CASE 2.—Mrs. B. A., aged 40, first seen Dec. 21, 1937, complaining of frequency, urgency and burning on urination,

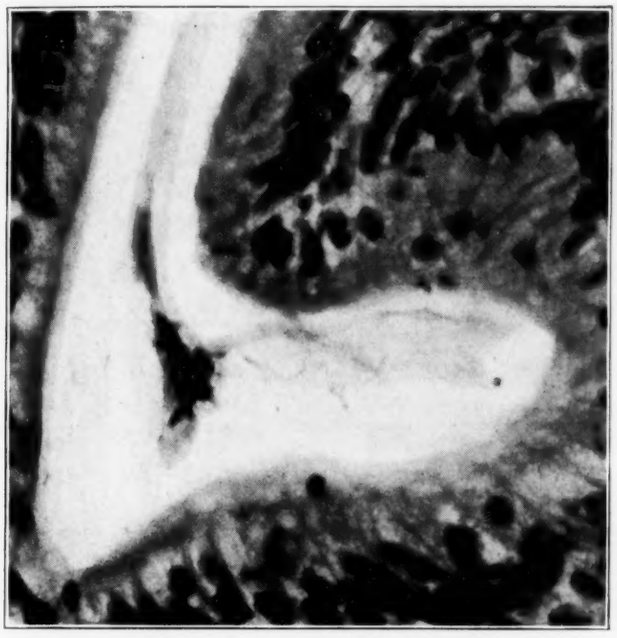

Fig. 6.—High power enlargement of a typical gland lined by columnar epithelium. The gland is filled with mucus and degenerated leukocytes.

had undergone myomectomy for uterine bleeding in October 1937. A month later she began having pain and burning on urination, which had continued to the time of examination. She had not passed any blood in the urine, had had no previous similar attacks and had entirely recovered from the operation. The menstrual history was normal, and she had never been pregnant. The past history was irrelevant. An excretory pyelogram showed a normal concentration of the dye in each kidney, with no abnormalities. The ureters were well outlined, and no cystic changes were seen in the walls of the ureters. The function of the kidneys was equal and within normal limits.

Complete study of the blood, including a Wassermann test and a determination of nonprotein nitrogen, showed no abnormality.

A catheterized specimen of urine showed Bacillus coli in pure culture, with an occasional pus or red blood cell. The capacity of the bladder was 360 cc.

Cystoscopic examination revealed several small cysts in the vesical orifice, extending well around the circumference. They appeared solid and reddish. They did not give the typical cystoscopic picture of cystitis cystica but did resemble the follicular lesions seen in the first case. The entire trigon was covered with a large number of small solid nodules. There was an area of leukoplakia just medial to the left ureteral orifice. The rest of the bladder was congested but showed no nodules. No evidence of bleeding or ulceration was noted. The clinical diagnosis was cystitis follicularis. Biopsy confirmed the cystoscopic diagnosis. The remaining nodules were destroyed by fulguration, including those situated in the vesical orifice. It was believed that all the cysts were thus destroyed.

A microscopic examination of the removed nodule showed it to be covered with transitional epithelium, under which there were two lymph follicles supported by loose connective tissue of moderate vascularity. The germinal centers showed moderate hyperplasia. No evidence of malignancy was noted. The diagnosis was cystitis follicularis (Capt. Elbert DeCoursey).

CASE 3.—Mrs. N. B., aged 48, white, admitted to Georgetown Hospital Sept. 7, 1938, complained of severe pain in the region of the bladder, with frequency and urgency on urination. The present attack had begun about six weeks before, with severe pain over the region of the bladder at the end of urination. The symptoms increased in severity until she was voiding every thirty minutes during the twenty-four hours. No blood was passed and no previous similar attacks had been experienced. Her general health, weight and appetite were normal.

A catheterized specimen of urine contained many pus and a few red blood cells. Cultures showed Bacillus coli of the Aerobacter strain. A preliminary roentgenogram gave negative results, as did routine study of the blood. An intravenous pyelogram showed the upper part of the urinary tract to be normal. The cystogram showed many small, irregular defects along the superior margin of the bladder, suggestive of small papillomas (Dr. F. O. Coe).

A cystoscopic examination showed the trigon and posterior wall of the bladder to be covered by discrete rounded reddish nodules from 1 to 3 mm. in diameter. They appeared solid and were not ulcerated. A cystoscopic diagnosis of cystitis follicularis was made. Five nodules removed for microscopic study showed typical lymph follicles with germinal centers. One section of the specimen revealed the presence of two typical glands in addition to the lymph follicles (fig. 6). The diagnosis was cystitis follicularis and cystitis glandularis (Col. J. E. Ash).

CASE 4.—Mrs. L. H., aged 56, seen Nov. 16, 1938, complaining of hematuria and frequent and painful urination, stated that she had had pain in the region of the bladder with the passage of blood clots for four months. The pain was confined to this region and came on at the end of urination. She had nocturia (six or eight times). The bleeding usually

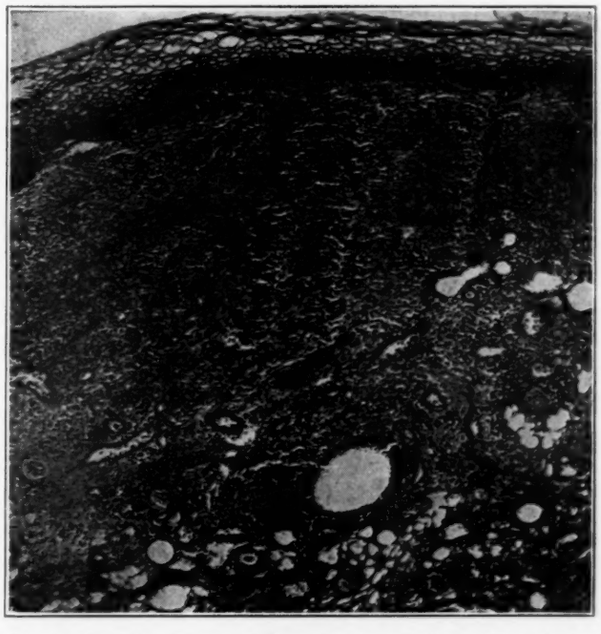

Fig. 7 (case 4).—Section showing cystitis granulosa. There is metaplasia of the vesical epithelium, and the lymph follicles are absent; × 70.

came on at the end of urination and was intermittent, though it had gradually increased in amount during the preceding week. She had not lost any weight and her general health had been excellent. Her past history revealed no similar attack, and aside from the usual diseases of childhood she had not had any severe illness. She had three children living and well and her menstrual history had been normal, including a normal menopause.

A catheterized specimen contained a large number of pus and red blood cells. Culture showed Bacillus coli. A preliminary roentgenogram was normal, as were the results of complete study of the blood. A cystoscopic examination under gas anesthesia on November 21 revealed a circumscribed group of polyps in the trigon; these were approximately 1 cm. in diameter. Ulceration was present and numerous small blood vessels could be seen, one of which was producing the bleeding. The remainder of the bladder was free from any similar lesions, though generalized cystitis was present. A biopsy specimen was taken from the granuloma and on microscopic examination showed metaplasia of the vesical epithelium. The underlying structures consisted of granulation tissue which was fairly vascular, with numerous typical fibroblasts. There was considerable infiltration with lymphoid and pus cells. There was no evidence of malignancy (fig. 7). The whole area was thoroughly fulgurated with a resectoscope. The patient had no further bleeding or pain other than that incidental to the vesical instrumentation. The diagnosis was cystitis granulosa (Drs. Cajigas and Ash).

Summary of Cases of Pyelitis Follicularis

Author	Age	Sex	Chief Complaint	Diagnosis	Cystoscopic Observations	Microscopic Observations	Treatment	Result
1. von Frisch..... (1906)	36	♂	Profuse intermittent hematuria	Pyelitis follicularis	Not stated	Granular pyelitis, solitary follicles	Nephrectomy, left	Cured
2. von Frisch..... (1907)	30	♂	Gross bloody urine	Pyelitis follicularis	Not stated	Pyelonephritis, lymph follicles found in kidney	Nephrectomy, right	Cured
3. von Frisch..... (1907)	37	♀	Bleeding from kidneys	Pyelitis granulosa follicularis	Not stated	Entire kidney degenerated	Nephrectomy, right	Cured
4. Lowenhardt..... (1905)	33	♀	Strangury, hematuria, frequency	Pyelitis, cystitis follicularis	Bladder, nodular region, trigon	Nodules in bladder were lymph follicles	Nephrectomy, right	Cured for a time but recurred
5. Taddei..... (1907)	23	♀	Hematuria, four weeks' duration	Pyelitis follicularis	Blood coming from left kidney	Renal pelvis contained many lymph follicles	Nephrectomy, left	Cured
6. Soleri and Zanelli..... (1905)	42	♀	Profuse hematuria, frequency, urgency	Pyelitis follicularis	Blood from left kidney, bladder normal	Pelvis filled with sandlike excrescences, lymph follicles	Nephrectomy, left, after cystotomy	Cured
7. Kretschmer..... (1912)	36	♀	Albuminuria, chills, fever, pyuria, frequency of urination	Pyelitis follicularis, pyonephrosis	Pus in right kidney, normal left; bladder normal	Renal pelvis showed lymph follicles with germinal centers	Nephrectomy, left	Cured
8. Stirling..... (1937)	35	♀	Gross hematuria, dysuria, pain, frequency of urination	Pyelo-ureterocystitis follicularis, cystitis cystica	Bladder studded with nodules and cysts	Large number of lymph follicles with germinal centers, also cysts of cystitis cystica	Renal lavage, dilatation of ureter, fulguration of bladder cysts	Improved
9. Baetzner..... (1913)	34	♂	Hematuria, pyuria, pain and burning urination	Pyelo-ureterocystitis follicularis	Many diffuse nodules covering trigon	Nodules containing lymph follicles with germinal centers	Nephrectomy, left	Cured
10. Hundley and Carson... (1923)	40	♀	Hematuria, pain in right side for many years	Pyelitis follicularis, hydronephrosis, hydroureter	Bladder inflamed and ulcerated	Lymphoid hyperplasia of pelvis	Ureteral dilation, renal lavage, nephrectomy on right	Cured
11. Hundley and Carson... (1923)	30	♀	Pain in left kidney, frequency, dysuria, hematuria for several months	Pyelitis follicularis, tuberculosis of kidney suspected	Bladder normal x-ray showed calcareous renal deposit	Kidney contracted, contained many nodules of lymphoid cells	Nephrectomy on left for chronically infected functionless kidney	Cured
12. Hundley and Carson... (1925)	45	♂	Admitted unconscious; no history	Pyelitis, cystitis follicularis	Not performed	Diffuse lymphoid hyperplasia of kidneys, ureters, bladder	.....	Died

TREATMENT

Eradication of the long-standing vesical infection, chiefly by the Bacillus coli group, should be attempted by elimination of any focus of infection, such as the teeth, tonsils, gallbladder, colon and rectal crypts. Oral therapy with either sulfanilamide or mandelic acid should be tried. Fulguration of individual nodules has been of value in some cases and was successful in all my cases. Ureteral dilation, renal lavage and the establishment of free drainage are essential. Nephrectomy is usually contraindicated in pyelitis follicularis, as the two renal pelves are similarly affected. Two of my patients have now been symptom free for several months and the third is responding well to similar measures. The fourth patient has been seen recently and has had no recurrence of pain or bleeding. The frequency of urination has also lessened.

COMMENT ON CASES

Whether lymphoid tissue is a normal constituent of the mucosa of the urinary tract remains unsettled, though most writers agree that it may be found occasionally. Ash [19] said "Lymphoid tissue may occasionally be present in the mucosa of the bladder, although it is very uncommon." Ewing [20] stated that "lymphoid tissue is very rare in the normal bladder, but as in all other mucous membranes, mild grades of chronic catarrhal inflammation are often associated with the development of small lymph cell collections. In such cases it is difficult to determine whether such bladders are normal or pathological." He concluded that "well formed lymph follicles with germinal centers are so very rare in the normal bladder that their presence would raise a suspicion of a pathological state." Chiari [21] and Przewoski [22] expressed the opinion that its presence in this location is pathologic. Stoerk [23] was unable to find it in the bladder of the newborn

Cystitis emphysematosa, cystitis granularis and cystitis cystica, on the other hand, are seen and diagnosed

19. Ash, J. E.: Personal communication to the author, 1938.
20. Ewing, James: Personal communication to the author, 1938.
21. Chiari, H.: Ueber das Vorkommen lymphatischen Gewebes in der Schleimhaut des harnleitenden Apparates des Menschen, Med. Jahrb., 1881, p. 9.
22. Przewoski, E.: Ueber noduläre oder folliculäre Entzündung der Schleimhaut der Harnwage, Arch. f. path. Anat. **116**: 516, 1889.
23. Landsteiner, K., and Stoerk, O.: Beitr. z. path. Anat. u. z. allg. Path. **36**: 131, 1904.

much more frequently than the follicular type, sixty cases of cystitis cystica having been reported by Morse.[24]

Strachstein [25] found the renal pelvis and ureters involved in two of 3,000 autopsies. It has been suggested that cystitis cystica represents a later stage of cystitis glandularis, owing to rupture and opening of the cysts, and thus accounts for mucus issuing from an organ without mucous glands (Hinman [1]). Giani [26] reported the accidental production of cystitis cystica by introduction of gelatin-coated capsules containing tubercle bacillus into the bladder of rabbits. Other writers ascribed their presence to "cell nests," as described by von Brunn.[27]

Aschoff,[28] Reisman [29] and other early writers said that true glands are not found in the bladder, whereas Zuckerkandl,[8] Ash [19] and Cajigas [30] have found true glandular tissue in the normal bladder, especially in the region of the vesical outlet.

In reviewing the literature on these proliferative lesions, I have not found any mention of the concomitant presence of cystitis cystica, cystitis follicularis and cystitis glandularis. In Kretschmer's [11] case both cystitis follicularis and cystitis glandularis were present. Mills [18] reported a case of cystitis cystica with cystitis emphysematosa. It would not be surprising, however, to find such an association, in view of their supposed common source.

In the first case the diagnosis of pyelo-ureterocystitis follicularis was based on the history of repeated attacks of bilateral renal bleeding, and urographic evidence of filling defects in the kidney and ureter. Cultures of material from both pelves were positive. In the other three cases there was no evidence of renal involvement.

ANALYSIS OF CASES

A critical histologic study of the four cases reported herein as well as the ones reported by other recent writers discloses the fact that in few instances does cystitis present a pure type of lesion. Two or more proliferative lesions may be present simultaneously. Thus the diagnosis would rest on the predominance of a certain type of lesion.

CONCLUSIONS

Four cases of cystitis follicularis were observed. In the first the condition was associated with cystitis cystica and cystitis glandularis, with lesions in the kidneys and ureters. In the second case the picture was uncomplicated, in the third cystitis glandularis was present and in the fourth cystitis granulosa.

The treatment in general should be limited to eradication of foci, oral therapy and cystoscopic destruction of the local lesions. Nephrectomy is usually contraindicated, owing to bilateral involvement of the renal pelves in the pyelitis group. In cases of unexplained hematuria a careful search should be made of the mucosa of the bladder as proliferative cystitis is not as rare as the scarcity of cases would seem to indicate. Biopsy of any suspicious lesion, followed by fulguration, should be the rule.

24. Morse, H. D.: The Etiology and Pathology of Pyelitis Cystica, Ureteritis Cystica and Cystitis Cystica, Am. J. Path. **4**: 33-50 (Jan.) 1928.
25. Strachstein, Abraham: A Case of Pyelo-Uretero-Cystitis Cystica, J. Urol. **36**: 22-25 (July) 1936.
26. Giani, K.: Neuer Experimenteller Beitrag zur Entstelhung der Cystitis Cystica, Zentralbl. f. allg. Path. u. path. Anat. **17**: 900-902, 1906.
27. von Brunn, A.: Ueber drusenahnliche Bildungen in der Schleimhaut des Nierenbickens der Ureters und der Hornblase beim Menschen, Arch. f. mikr. Anat. **41**: 294-302, 1893.
28. Aschoff, Ludwig: Ein Beitrag zur normalen und pathologischen Anatomie der Schleimhaut der Harnwage und ihrer drüsigen Anhage, Arch. f. path. Anat. **138**: 119-161, 1894.
29. Reisman, B.: American Text Book of Pathology, p. 994.
30. Cajigas, Tomas: Personal communication to the author, 1938.

Clinical Notes, Suggestions and New Instruments

ECHINOCOCCUS CYSTS OF THE LIVER OF FIFTY-SIX YEARS' DURATION

THEODORE C. LAWSON, M.D., OAKLAND, CALIF.

Although echinococcus cysts are not of common occurrence in the United States, they are of sufficient interest always to be considered in the differential diagnosis of tumors of the liver. They grow slowly, but it is not often known for exactly how many years a patient has harbored the parasite. Magnusen [1] has reported a case under observation for forty years, and Holmes [2] reported a case in which the parasite was present for forty-six years. It is rare that one has positive proof of the length of duration of the infestation, and when one has, the case is sufficiently interesting to be worthy of a report.

F. T., a man aged 67, an Englishman, was admitted to the Alameda County Hospital Aug. 2, 1937, complaining of an intermittent pain in the lower dorsal and upper lumbar part of the back and the upper part of the abdomen, which he had had since 1926. At that time he was hospitalized and his condition was attributed to a spinal disorder, and subsequent treatment proved ineffective. Two years before the pain had begun to be more severe in the abdomen than in the back, particularly over the right half of the upper part of the abdomen, radiating into the right flank. This pain was sharp and stabbing, frequently lasting three or four days without remission, with a three or four month interval of complete relief between episodes. Such bouts were so severe that the patient was confined to bed and required from ten days to two weeks for recovery. The pain had no relation to food; he had had no hematemesis, bloody stools, jaundice, flatulence, nausea or vomiting. Constipation had always been troublesome. He had lost about 13 pounds (6 Kg.) in the last two years.

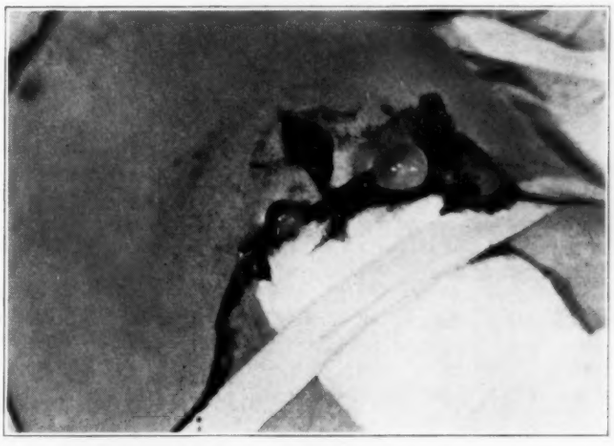

Fig. 1.—The wound, with two small cysts which have just been extruded from the liver.

Prior to entry he had called in his physician, who thought the pain was possibly arising from the right kidney and referred him to a urologist. A pyelogram revealed a normal right kidney, but a mass in the right upper part of the abdomen was palpated and he was referred to the hospital.

The patient was born in England and was a storekeeper by trade. He used considerable alcohol in his youth. He mentioned that he used to swim a good deal in a farming district. In 1882, when he was 11 years old, his abdomen enlarged and he was admitted to St. Bartholemew's Hospital, London, where his abdomen was tapped and his condition diagnosed as "hydatid cyst" of the liver. The abdomen filled again in twenty-four hours, and the next day the cyst was removed surgically. He made a complete recovery. He left England when he was 13.

1. Magnusen, G.: Two Hundred and Fourteen Echinococcus Operations, Arch. f. klin. Chir. **100**: 293, 1912.
2. Holmes, H. I.: Hydatid of the Liver of Many Years' Duration, M. J. Australia **1**: 704 (May 25) 1929.

Except for appendicitis, for which an appedectomy was performed in 1933, he had had no other complaints.

Examination showed that the patient was well developed and well nourished. He did not appear acutely ill. The teeth were in poor condition, with gingivitis present. The tonsils were mildly injected. The heart was enlarged and the apex beat palpable in the fifth interspace about 2 cm. outside the midclavicular line. There were occasional extrasystoles. The blood pressure was 128 systolic, 88 diastolic. A nonfixed, tender, discrete mass was felt in the abdomen, presumably the liver, four fingerbreadths below the right costal margin. Below this main mass two other masses were felt, one in the region of the gallbladder, measuring about 10 by 6 cm., and the other just to the left of the midline in the epigastrium, measuring about 6 by 4 cm. Postoperative scars were present in the right upper and the right lower part of the abdomen. The reflexes and the extremities were normal. Proctoscopic examination gave negative results. Examination of the blood showed 80 per cent hemoglobin, 4,420,000 red cells and 10,200 white cells, with 77 per cent polymorphonuclears, 18 per cent small lymphocytes, 1 per cent monocytes and 4 per cent eosinophils. A second count showed 1 per cent eosinophils. The Wassermann reaction was negative. The urine and feces were normal.

A plain roentgenogram of the abdomen showed evidence of an enlarged liver, with some flaky spots of calcification in the right upper quadrant in the region of the liver. Roentgen examination after a barium sulfate enema revealed no intrinsic lesion of the colon. The transverse colon was displaced downward by an enlarged liver. A gastrointestinal series showed the entire second portion of the duodenum to be pushed down and compressed by a large mass, which was palpable in that area and appeared to be continuous with the liver.

Intradermal injection of 0.7 cc. of echinococcus antigen produced an immediate wheal formation, which subsided in six hours.

The preoperative diagnosis was echinococcus cyst of the liver.

The operation was performed Aug. 27, 1937. With the patient under ether anesthesia, the abdomen was opened through an upper right rectus incision. The liver at first appeared to be enormously enlarged, but on closer inspection it was found that it contained a large cyst and that what was left of the liver was stretched tightly over this, the parenchyma being stretched to a thickness of about one-third inch around the circumference of the cyst. On palpation, hydatid fremitus was felt. A cystic

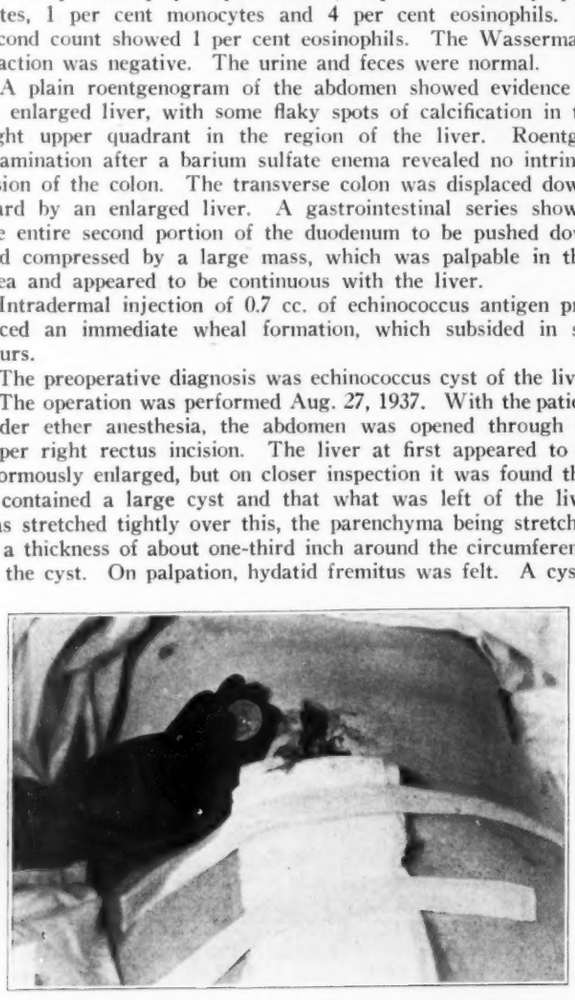

Fig. 2.—The wound, with several cysts being extruded.

mass hanging down from the lower border of the right lobe and a projection of the left lobe downward were the two masses palpated preoperatively. Obviously it was impossible to remove the entire cyst from within the liver. No free fluid was present. The intestine and colon were matted together with numerous though not dense adhesions, and interspersed between the coils were several cysts varying in size from 1 to 5 cm. in diameter. One of the larger of these cysts and the cystic mass attached to the right lobe of the liver were removed. It was impossible to open and drain the liver from its inferior border without spilling its contents within the peritoneal cavity, and, as numerous dense adhesions were felt between the superior-anterior aspect of the right lobe and the dome of the liver to the diaphragm and upper part of the peritoneum, it was thought best to drain the cyst in this area, for it was already extraperitoneal. The peritoneum and fascia were closed, and a new 3 inch incision was made above this incision through the fascia until the dome of the liver was encountered. Two per cent solution of formaldehyde was injected into the hepatic cyst. With an electrocautery the liver shell was punctured through and the opening enlarged to about 3 cm. in diameter. Much clear fluid, numerous collapsed cyst walls and fewer intact cysts were removed. The wound was packed open with gauze, and the patient returned to his bed in good condition.

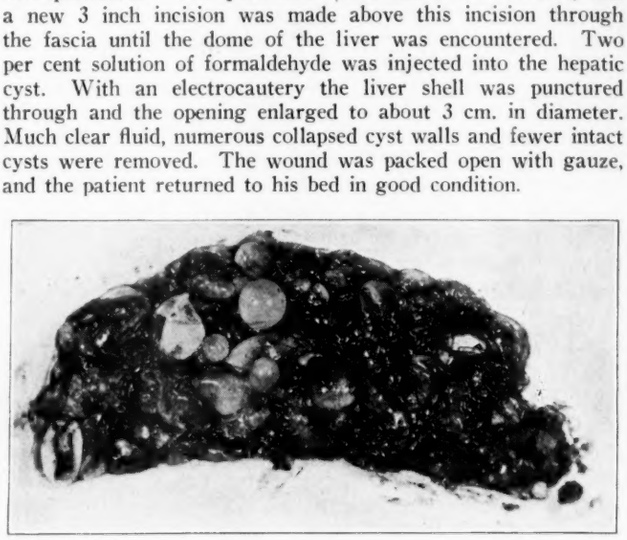

Fig. 3.—The cysts, some collapsed and others intact, immediately after the operation.

The marsupialized wound discharged many cysts and collapsed cyst walls daily. For three weeks the temperature was between 100 and 104 F. The patient appeared to be improving for one week after the operation; he then began to get listless, somnolent and mentally confused, with euphoria, had an increase in pulse rate with a drop in blood pressure, cold clammy sweating and moderate conjunctival icterus and appeared critically ill. A diagnosis of hepatic insufficiency was made, and fluids, including adequate amounts of dextrose and sodium chloride, administered intravenously, were given daily. The recovery thereafter was slow but steady. On the twenty-fifth postoperative day the patient was transferred to Fairmont Hospital for chronically ill patients. He continued to get stronger, ate well and improved. The drainage from the wound lessened, though there was a discharge of one or two cysts on the dressings daily for a month after his transfer, after which no more cysts were expelled and the wound began to granulate in. He left the hospital Thanksgiving day 1937. Subsequent to his return home he gained in weight and strength, was able to return to his occupation as a grocer and had no return of the severe abdominal pains previously complained of. In February 1938 his wound broke open and two cysts were discharged; after three days it healed again. At present he feels well and has no complaints. His incision is firm and nontender and the liver cannot be felt.

The future health of this patient is problematic. It would appear that, since he has harbored the parasite for fifty-six years, he has become partially immunized against it. As he has had time to establish a defensive reaction against the echinococcus he will no doubt continue to exercise it for years to come and will probably succumb to some other causative factor. Death from this parasite is not from a toxic reaction but from complications such as the growth and extension of the cysts into the vital parts of the body by pressure, rupture and secondary infection, with resultant toxemia. This patient has been fortunate in not having an infestation of a vital organ other than the liver, and the reparative powers of the liver are well known. At operation it was judged that only one fifth of the normal amount of hepatic tissue was present. The tissue has probably since regenerated to a greater amount, as evidenced by the clinical improvement to apparently normal health. Mann [3] has shown experimentally, with dogs, that after removal of as much as 70 per cent of the liver the organ is repaired in twelve weeks not only by hypertrophy but by hyperplasia of the remaining hepatic cells. In man the regenerative capacity is probably the same when the cells are normal. The intrahepatic pressure of the slowly enlarging cyst in this case was

3. Mann, Frank C.: The Effects of Complete and of Partial Removal of the Liver, Medicine **6**: 419 (Dec.) 1927.

so great as to leave a shell of hepatic tissue averaging about one third inch, so that the hepatic cells could not have been functioning normally; consequently the regeneration must have been even slower than if they had been normal. The intrahepatic and intracystic pressure gradually increased over a long period; hence the finding that the major portion of the contents of the cyst was ruptured walls of daughter cysts and only a comparatively small portion were intact daughter cysts. Lyon [4] has shown that in cases of hepatic insufficiency, in addition to dextrose given intravenously, dehydrocholic acid given daily by the intravenous route furnishes a distinct support to the liver and hastens the reparative powers of the hepatic and especially of the Kupffer cells. Had it been available it would have been given in this case and no doubt would have hastened the recovery from hepatic insufficiency.

3115 Webster Street.

TUBERCULOSIS OF THE MYOCARDIUM

EDWARD W. CUSTER, M.D. AND ROBERT CHARR, M.D.
Assistant Physician and Assistant Pathologist, Respectively, White Haven Sanatorium
WHITE HAVEN, PA.

No organ of the body is safe from infection by tuberculosis, but the relative immunity of muscle tissue in general and heart muscle in particular excites interest and speculation. Although reports of myocardial tuberculosis have appeared in the literature with increasing frequency in recent years, positive proof of the causation is often lacking and the pathologic appearance varies greatly. In the case reported, tubercle bacilli were demonstrated in sufficient numbers to identify the lesion beyond question and the mode of entrance into the heart muscle was clearly not extension from the pericardium in the usual manner. The gross and histologic characteristics were definitely those of tuberculosis.

J. M., a white youth aged 19, was admitted March 3, 1937, to the White Haven Sanatorium in the service of Dr. Edward Bixby of Wilkes-Barre, Pa. Examination revealed extensive bilateral pulmonary tuberculosis complicated by laryngeal tuberculosis. The patient's clinical course was one of continuous regression punctuated by two episodes of severe hemoptysis, the first shortly after admission and the second one month before death. No signs or symptoms of cardiac disease were manifest at any time.

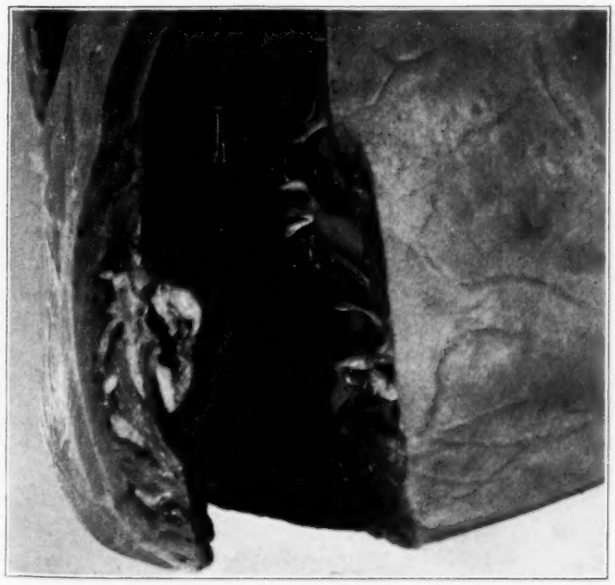

Fig. 1.—Section through mass in wall of right ventricle, showing necrotic center with processes extending into the myocardium. Note that the epicardium and the heart wall just beneath are free from involvement.

At necropsy the body showed marked pallor and emaciation. There was edema of both ankles, especially the left. The pericardium held 25 cc. of straw-colored fluid containing two small flakes of fibrin. Its inner surface was smooth and glistening and presented no adhesions or other gross evidence of tuberculosis. The heart was normal in size and weighed 300 Gm. Its muscle was pale and soft. The left ventricle measured 1.5 cm. and the right 1 cm. in thickness. The mitral valve was 9 cm. wide, the tricuspid 11 cm., the aortic 7 cm. and the pulmonic 8 cm. When the right ventricle was opened a large round mass, measuring 1.5 cm. across, was seen protruding into the chamber between the trabeculae near the apex (fig. 1). Adjacent to this were four smaller nodules. The large mass had a caseous center with processes extending into the surrounding heart muscle. None of these reached the epicardium, however. The endocardium over the nodules seemed to the naked eye to be intact, although antemortem thrombi were adherent to its surface near the interventricular septum and between the papillary muscles. There was no macroscopic evidence of tuberculosis of the coronary vessels, which were patulous and did not contain clots. No lesions were found elsewhere in the heart.

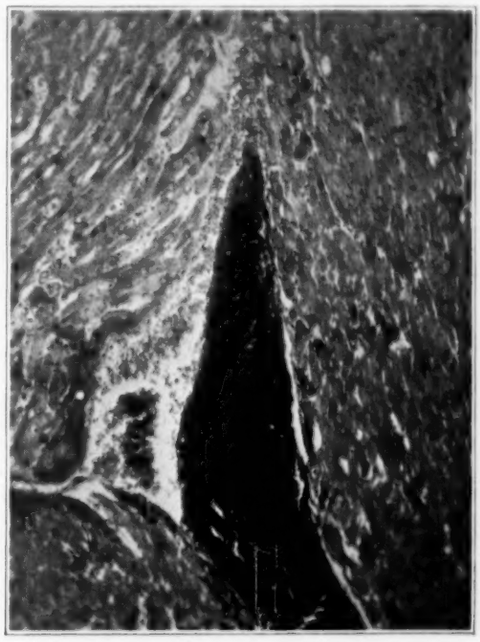

Fig. 2.—Wedge-shaped area of exudate and hemorrhage extending into myocardium. Note the relatively normal muscle tissue immediately adjacent to the inflammation.

The pleura was thickened and adherent to the chest wall and diaphragm. On section both lungs showed extensive tuberculosis with cavitation and but slight attempt at fibrosis. There were anthracosis and tuberculosis of the hilar lymph glands but nothing to suggest that the myocardium was directly infected by the disease in the nodes.

Examination of the abdominal organs was not permitted.

Histologic examination revealed that in the center of each nodule was a mass of cellular detritus, and surrounding this area was a zone of small, round endothelial cells. No giant cells were seen. As many as three or four tubercle bacilli to a field were seen in sections from the caseous areas stained by the Ziehl-Neelsen method. The inflammation extended into the adjacent myocardium in the form of finger-like processes parallel to and separating muscle fibers into bundles. There was frequently seen in advance of the exudate a hemorrhagic area which appeared to produce pressure atrophy, and in places complete necrosis, of the muscle fibers. Thus weakened, the myocardial tissue apparently became more susceptible to the advancing disease (fig. 2). The pericardium and subepicardial tissues were normal. The endocardium was broken through by the infection in several places. The most likely portal of entry appeared to be the right coronary artery. Although there

4. Lyon, B. B. V.; Swalm, W. A.; Bartle, H. J., and Sterner, R. F.: The Therapeutic Effectiveness of Dehydrochloric Acid in Liver and Biliary Tract Disease, M. Rec. **139**: 123 (Feb. 7) 1934.

Read before the Laennec Society, Philadelphia, April 26, 1938.

were no tubercles in any of its branches, slight intimal thickening and perivascular infiltration were observed near the caseous masses.

In reviewing the literature we found that a total of sixty-four examples of tuberculosis of the myocardium were found in 14,493 tuberculous patients by different observers reporting large series of cases,[1] an incidence of 0.44 per cent. During the last nine years we have discovered the condition only once in 400 cases in which autopsy was performed. The reason for this relative immunity of the heart muscle remains problematic. The factors responsible in the present case are not clear unless it is assumed that the patient's existence for several weeks in a semimoribund state so lowered his general resistance that the local resistance also was affected.

Clinically, tuberculosis of the myocardium has been diagnosed rarely, although it was suspected in several cases reported by Gouley, Bellet and McMillan[2] in which an ectopic rhythm appeared during the course of known tuberculous pericarditis. Prognostically it is unimportant, as it occurs only with far-advanced disease. There is of course no treatment.

COCCIDIOIDAL GRANULOMA SIMULATING BRAIN TUMOR IN A CHILD OF FOUR YEARS

B. P. STORTS, M.D., TUCSON, ARIZ.

The following case report is of interest because of the relative rarity of coccidioidal granuloma and because it simulated brain tumor.

M. E. H., a girl aged 4 years, first seen Oct. 4, 1937, had been "losing ground" for six months and had had headaches for

Fig. 1.—Single coccidioidal lesion in right lung.

four months, nausea and vomiting for two months and an unsteady gait for one month. The family history was not important. She had measles at 2 years and a tonsillectomy at 3.

The headaches had been periodic and mostly frontal. The vomiting had been frequent, usually in the mornings. The unsteadiness of gait, with the child staggering to the left, had grown progressively worse. She had occasional pains in both legs. Mentally she had been alert.

At examination her height was found to be 40 inches (102 cm.) and her weight 31 pounds (14 Kg.). The frontal bosses were prominent and there was a high pitched percussion note over the calvarium. Moderate stiffness of the neck was

Fig. 2.—Coccidioidal tubercles.

present. The circumference of the head was 51 cm. There was marked choking of both optic disks. The Romberg sign was present. A roentgenogram of the skull revealed marked widening of all suture lines.

A blood count showed 80 per cent hemoglobin, 4,740,000 red cells and 10,400 white cells. A differential count showed 41 per cent polymorphonuclears, 35 per cent small lymphocytes, 8 per cent monocytes, 1 per cent eosinophils and 15 per cent stab cells. The Mantoux test with 0.1 cc. of a 1:1,000 solution injected intradermally was negative. The sedimentation rate was 48 mm. in sixty minutes. Kolmer and Kahn tests were

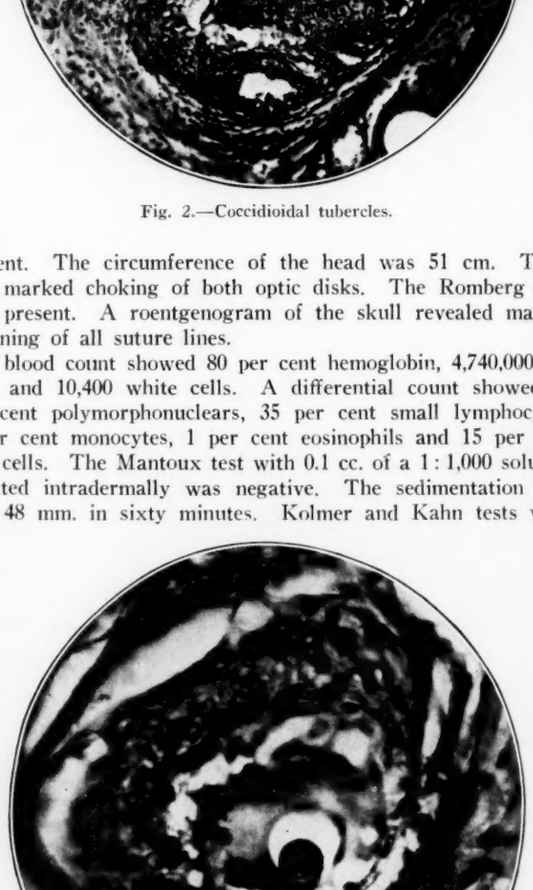

Fig. 3.—Coccidioides immitis in a giant cell.

negative. Examination of the urine and stools gave negative results. A tentative diagnosis of cerebellar tumor, probably a medulloblastoma, was made and the patient referred to Dr. C. W. Rand, Los Angeles.

An exploratory operation by Dr. Rand disclosed a large cyst in the cisterna magna, with thickened arachnoid. Dr. Rand stated that the picture was unusual. The posterior wall of the cisterna magna, which is ordinarily covered by arachnoid

1. Norris, G. W.: Am. J. M. Sc. **128:** 649, 1904.
Horn, Henry, and Saphir, Otto: Am. Rev. Tuberc. **32:** 492 (Nov.) 1935.
Cited by Horn and Saphir:
Raviart, G.: Arch. de méd. expér. et d'anat. path. **18:** 141, 1906.
Valentine, G.: Thesis, Paris, 1894, No. 46.
Willigk, G. A.: Vrtljschr. f. d. prakt. Heilk. **44:** 86, 1854.
2. Gouley, B. A.; Bellet, Samuel, and McMillan, T. M.: Tuberculosis of the Myocardium, Arch. Int. Med. **51:** 244 (Jan.) 1933.

of a spider web transparency, was covered by a white opaque membrane about 1 or 2 mm. thick. This entirely dammed back the spinal fluid and caused a large cyst.

Microscopic studies of the membrane by Dr. C. M. Hyland revealed lymphoid infiltration and numerous concentric masses of cells. The periphery of these concentric masses was composed of dense, almost hyalinized, fibrous tissue, and the center was occupied by a large foreign body giant cell or a group of epithelioid cells. Within the body of the giant cells and in the crevices of some of the epithelioid cells there were spherical bodies with a double contoured highly refractile capsule. The diagnosis was coccidioidal granuloma.

The child was somewhat better for several weeks after the operation. As sulfanilamide has been suggested as a possible cure for this condition, rather large doses were given subcutaneously and intravenously in 0.8 per cent physiologic solution of sodium chloride. However, the course of the disease continued to be hopeless, and the child died December 7.

An autopsy performed by Dr. Ludwig Lindberg revealed a recurrence of the membranous lesion at the base of the brain and the formation of fibrous adhesions to the brain substance. The cerebellum had been pushed down into the area surrounding the foramen magnum. The lower portion of the upper lobe of the right lung contained a small hard nodule consisting of caseous material and simulating a Ghon tubercle. This single, sharply circumscribed nodule, 1.5 cm. in diameter, was the only lesion in the lungs. Sections showed coccidioidal tubercles and Coccidioides immitis.

COMMENT

Coccidioidal granuloma was first described in this country by Rixford in 1895. Afterward many reports appeared, chiefly from California. Recently cases have been reported from other portions of the United States. In California, especially in the San Joaquin Valley, the disease is well known. Dickson [1] described a condition called valley fever and characterized by a cold or bronchopneumonia, often with a relatively high fever and the appearance of painful erythema nodosum. This he said was the primary acute infection with coccidioides. Many writers have stressed the similarity of the disease to tuberculosis. In this instance the similarity is consistent. The disease is rare in children. California [2] reported that since the initial case, in 1895, to July 1, 1936, a total of 450 cases with 224 deaths had occurred. Twenty patients were under 4 years of age and thirty-four under 10. Duckett and Fredeen [3] reported an instance in which coccidioides infection in a boy aged 5 years probably precipitated hydrocephalus and at autopsy extensive meningeal involvement was seen. (This instance would bring the reported total to twenty-two patients under 5.) Rand [4] reported two cases in which the condition in adults simulated tumor of the spinal cord. In one, operation proved beneficial. The treatment is unsatisfactory. Tomlinson and Bancroft [5] expressed the opinion that the use of antimony and potassium tartrate in addition to roentgen therapy is of value. Jacobson [6] emphasized colloidal copper. Surgical excision may prevent spread of the condition.

One wonders why this child should have had a coccidioidal infection. She had lived her entire life in Tucson, Ariz., and her case is the first reported in which the disease originated in this locality. It is of interest that her father maintains a cleaning and pressing establishment and the child frequently rode with him in the delivery wagon, using dirty clothes as a cushion. Mycotic diseases are said to be more common among workers engaged in this type of work.

4 East Congress Street.

1. Dickson, Ernest C.: "Valley Fever" of the San Joaquin Valley and Fungus Coccidioides, California & West. Med. **47**: 151 (Sept.) 1937.
2. California State Department of Public Health: Coccidioidal Granuloma in California in 1934-1935, California & West. Med. **46**: 282 (April) 1937.
3. Duckett, Thomas G., and Fredeen, Robert C.: Coccidioidal Granuloma, J. Kansas M. Soc. **38**: 111 (March) 1936.
4. Rand, Carl W.: Coccidioidal Granuloma: Report of Two Cases Simulating Tumor of the Spinal Cord, Arch. Neurol. & Psychiat. **23**: 502-511 (March) 1930.
5. Tomlinson, C. C., and Bancroft, Paul: Granuloma Coccidioides: Further Observations on the Use of Antimony and Potassium Tartrate and the Roentgen Rays in Treatment, J. A. M. A. **102**: 36 (Jan. 6) 1934.
6. Jacobson, H. P.: Coccidioidal Granuloma, California & West. Med. **29**: 392-396 (Dec.) 1928.

Special Article

CONFERENCES ON THERAPY

USE OF DRUGS IN THE TREATMENT OF ALLERGIC CONDITIONS

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.*

DR. EUGENE F. DU BOIS: The problems connected with the treatment of allergic conditions are increasing in importance. The question arises whether the advances in therapy have kept pace with the increase in the number of patients. Dr. Gold will start the discussion with a brief outline of the objectives in the treatment of asthma and other allergic conditions.

DR. HARRY GOLD: The rational use of drugs in the treatment of allergic conditions requires that we not merely look at these conditions as clinical entities but focus our attention on the physiologic disturbances which are responsible for the symptoms. At least eight major abnormalities are encountered in cases of bronchial asthma: (1) spasm of the bronchial muscle, (2) hypersecretion of the glands, (3) capillary dilatation, (4) increased permeability of the capillary wall, (5) edema of the mucous membrane and possibly also of the muscle of the bronchi and the bronchioles in the more advanced stages, (6) diminished elasticity of the lungs, (7) emotional unrest, anxiety and nervousness, and (8) asphyxia.

Not all cases present these factors in the same proportions, and it has been doubted whether some of these factors are ever present in some cases. There is a view that bronchial spasm plays but a little role in human bronchial asthma, although in the anaphylaxis of the guinea pig that appears to be the chief factor. The consensus, however, is, I believe, that all these factors, or at least most of them, play some role in most cases of bronchial asthma.

The result of most of these factors is, first, to impair the movement of air through the pulmonary tree and, second, to interfere with the diffusion of gases.

The innervation of the bronchial tree is a matter of some importance and is probably well known to you. Both the vagus and the sympathetic exercise control. The vagus supplies the constrictor fibers to the bronchial muscles and also the secretory fibers to the glands, and the sympathetic supplies fibers which when stimulated relax the smooth muscle of the bronchioles. The sympathetic also supplies the vasoconstrictor fibers and possibly some vasodilator fibers to the blood vessels of the bronchi.

Here is a list of the drugs by classes that are generally employed in the treatment of patients with bronchial asthma as well as other forms of allergic disorders:

1. Epinephrine, ephedrine and other related amines, generally in the form of their salt.
2. Atropine; stramonium.
3. Theophylline preparations, papaverine, nitrites.
4. Calcium salts.

5. Barbital and barbital derivatives, morphine, codeine.
6. Helium.
7. Iodides.
8. Iodized oil.
9. Anesthetics: ether, avertin with amylene hydrate.

The sympathomimetic amines like epinephrine, ephedrine and other related compounds produce effects similar to stimulation of the sympathetics, causing relaxation of the bronchial musculature and constriction of the blood vessels. The members of the belladonna group, atropine and stramonium, block the parasympathetics and thereby reduce the secretions and relax bronchial muscle. Among the agents which act directly on smooth muscle to cause relaxation are theophylline, caffeine, papaverine and the nitrites. The calcium salts reduce capillary permeability. The actions of the general depressants, such as the barbital derivatives, morphine and codeine, are well known. How some of these substances are best put to use in the treatment of bronchial asthma and other allergic conditions will be considered this morning. In the course of the discussions we hope that it may be possible to bring out some of the details of the pharmacologic actions of these compounds.

DR. HORACE S. BALDWIN: Bronchial asthma is primarily a functional disorder involving the bronchial tree. When the asthmatic paroxysm is over, the bronchi and lungs return to their previous state. With continued attacks, however, the asthmatic state becomes associated with definite pathologic changes such as emphysema, chronic bronchitis, bronchiectasis, pulmonary arterial hypertension and failure of the right side of the heart. I emphasize these points at the start because, whereas drugs in the treatment of bronchial asthma may for a time give spectacular relief, it is of paramount importance that the fundamental background of sensitivities, respiratory infection and neurogenic factors be carefully studied and adequately handled so that the use of drugs may not be necessary.

From the standpoint of the clinical use of the drugs which Dr. Gold has mentioned, I will proceed according to the outline he gave. Epinephrine, of course, is the drug that gives the most dramatic effect in asthma. It has no effect when given by mouth. When given subcutaneously its effect appears very quickly. I might state here that epinephrine does not usually need to be given in large doses. A dose of 0.25 or 0.5 cc. of a 1 : 1,000 solution of epinephrine hydrochloride is usually adequate. A dose of 1 cc. may often cause considerable tachycardia and nervousness, although it may not affect the asthmatic state any more favorably than 0.25 cc. The drug may be given three or four times a day, sometimes more often if necessary. Solution of epinephrine hydrochloride 1 : 100 may be given by a specially devised vaporizer and inhaled into the trachea. It has to some extent supplanted the administration of solution of epinephrine hydrochloride by hypodermic injection. It is very useful, but we have to beware of the possibility that so much epinephrine taken intratracheally may cause irritation.

DR. HENRY B. RICHARDSON: How long do they inhale it?

DR. BALDWIN: They inhale it until they get a therapeutic effect, which is usually a matter of fifteen or twenty seconds.

In the course of time epinephrine may lose its effect. That presents a problem in the treatment of status asthmaticus. I will attempt to touch on it later in the course of my brief remarks.

Ephedrine produces several effects similar to those of epinephrine, and it is potent when given by mouth. The dose of ephedrine is from 0.025 to 0.050 Gm. The effect of ephedrine is less intense and less dramatic than that of epinephrine, but it is very useful in the milder cases of asthma. It may also cause tachycardia, nervousness, insomnia and bladder disturbances. In view of this, ephedrine is best given in combination with a sedative, such as phenobarbital or amytal. A useful combination is ephedrine, 0.025 Gm. and phenobarbital 0.03 Gm. In that way the nervous effects of the ephedrine are reduced, whereas the therapeutic effect is not impaired.

We have not been greatly impressed with the value of atropine in asthma. I think the reason is that large doses are needed for therapeutic effect, and these cause disagreeable side effects, with dryness of the mouth, visual disturbances and other signs of atropine overdosage.

During the past year we have used theophylline frequently and we have had some very interesting experiences with it. We give it in the form of aminophylline. We find that the ordinary oral doses of 0.1 to 0.2 Gm. are not very effective and also that its oral administration in adequate dosage is often complicated by gastrointestinal difficulties. However, when we give it intravenously in doses of from 0.25 to 0.5 Gm. the effects have been very satisfactory. Those individuals in whom epinephrine "fastness" has seemed to develop, those in whom epinephrine does not seem to be any longer effective, often secure satisfactory relief in an attack of asthma from aminophylline given intravenously.

The calcium salts have offered attractive theoretical possibilities for the treatment of allergic conditions but I have not been impressed with their value in asthma.

The barbitals find their greatest usefulness in the treatment of the nervous symptoms of the asthmatic patient and in the control of the nervousness caused by epinephrine or ephedrine.

Morphine deserves a very important place in a discussion of this sort. Morphine sulfate to an asthmatic patient in doses of one-eighth grain (0.008 Gm.) or even less by hypodermic injection may be useful. However, it is a very dangerous drug for a good many asthmatic patients. Morphine stimulates the parasympathetic system, and some asthmatic patients are apparently more easily so stimulated by morphine than others. A good many deaths have been due to the indiscriminate use of morphine. The effect of morphine, besides that on the parasympathetic, is to depress the respiratory center and to diminish the ciliary action of the tracheal and bronchial mucous membrane. With too frequent repetition of the dose the patient may drown in his own secretion. I want to emphasize the extreme caution that should be used with the administration of morphine in bronchial asthma. Added to that is the fact that morphine is a habit-producing drug, a real source of danger in the asthmatic patient whose condition tends to recur over a period of years.

Helium offers interesting possibilities, particularly in the treatment of status asthmaticus. A mixture of

about 75 parts of helium and 25 parts of oxygen is lighter than air, has a greater inherent motility and can be breathed with much less effort. It has been used a great deal in the Medical Center uptown by Dr. Barach, who developed it. It is particularly applicable in some of the very severe cases of status asthmaticus. In this hospital, however, where we see a good many cases of severe status asthmaticus, we have seldom felt it necessary to resort to this method of therapy, which is so expensive. We do however use oxygen alone, preferably in the tent, in a good many of these cases. Its use is very important and may be life saving.

Iodides are a very important part of our drug armamentarium in the treatment of chronic bronchial asthma. The bronchial secretion is very tenacious in a great many asthmatic patients. We believe that the favorable influence of the iodides consists in making the mucus more liquid and thus facilitating its expectoration. Many proprietary preparations depend for their effect on the iodides and ephedrine.

The instillation of "iodized oils" is a therapeutic procedure for asthma that is fast losing ground. The more we see it used the more impressed we are with its dangers, namely localized lipoid pneumonia and the chronic irritation and chronic infection set up about the point where the iodide in oil remains in the bronchial tree.

The various anesthetics, ether and avertin with amylene hydrate are not being used very much. In severe cases of status asthmaticus rectal instillation of equal parts of ether and olive oil, 3 cc. per kilogram of body weight, or anesthesia by means of avertin with amylene hydrate, sometimes interrupts a vicious cycle. Their mechanism of action is not understood.

Dr. Du Bois asked me to say something about urticaria, angioneurotic edema and serum sickness. The drug treatment for urticaria and angioneurotic edema resolves itself into first aid measures while attempts are being made to ascertain the etiology. As to these first aid measures, epinephrine may be given subcutaneously in the doses I have indicated. In my experience it is much more effective than ephedrine given by mouth. Calcium therapy given intravenously and by mouth may also be helpful, and when there is low free hydrochloric acid in the stomach the administration of the dilute acid is particularly indicated.

Local measures, such as lukewarm baths of sodium bicarbonate or cornstarch, are also used with benefit.

With regard to serum reactions, one has two phases to consider: The first phase is the matter of anaphylactic shock due to the injection of a foreign protein to which the patient may be sensitive. Here prevention is certainly much better than cure, and if adequate cutaneous testing and conjunctival testing are done with the particular serum before it is given, the immediate anaphylactic type of reaction may be avoided. In any case, when a foreign serum is given it is wise to have epinephrine handy in a hypodermic syringe and give it promptly should the symptoms of acute anaphylaxis occur. The second phase is the matter of serum sickness occurring usually within ten days to two weeks after the administration of a foreign serum. It is controlled in large measure by the same means that we use for the treatment of urticaria and angioneurotic edema. Epinephrine may be given subcutaneously. Ephedrine may be used. Certain calcium compounds may be given intravenously and by mouth. Cool compresses to the itching swollen areas are much better than hot ones.

DR. DU BOIS: How about the use of acetylsalicylic acid?

DR. BALDWIN: Acetylsalicylic acid is a two-edged sword. In serum sickness acetylsalicylic acid may be very useful. On the other hand, you must remember that one of the most common causes of hives and angioneurotic edema that we generally encounter is acetylsalicylic acid. If you are going to give it in acute serum sickness it is well not to continue it very long, particularly if the patient continues to have urticaria during its use.

TREATMENT OF ALLERGIC CONDITIONS IN CHILDREN

DR. VERNON W. LIPPARD: We do not use a large number of drugs in treating allergic conditions in children, and we do not use any that have not been mentioned.

One or two points with regard to dosage might be emphasized. In children we use doses of epinephrine which closely approximate those used in older persons. An effective dose of solution of epinephrine hydrochloride in an infant is seldom less than 0.1 cc. and most children of school age require doses in the range of 0.3 cc. in order to bring about any therapeutic effect in an asthmatic attack. The ordinary dose of ephedrine sulfate in children is 0.025 Gm. and, as Dr. Baldwin mentioned, we often give a sedative either in the same prescription or concurrently. The use of sedatives might be stressed a little more in relation to children than it has been in adults. Many children become frightened during an asthmatic attack. The attack is likely to subside more quickly if one allays the emotional excitement by liberal use of phenobarbital or other sedatives in conjunction with epinephrine or ephedrine preparations. We do not use atropine very often because we find, as Dr. Baldwin said, that we cannot give enough atropine to produce therapeutic effects without creating the undesirable toxic effects which accompany large doses.

Of course, we attempt to discover the exciting factors. Since a great many allergic disorders are attributed to hypersensitivity to foods, pollens or inhalants it is often possible to remove the causative factors rather than merely to treat the symptoms. The use of drugs may often be confined to the period when one is studying the patient and trying to discover the offending antigens.

DISCUSSION

DR. DU BOIS: The subject is open to general discussion. I hope that you may have many questions relating to the pharmacology and the uses of these drugs, their mode of action, and the relative merits of the different compounds and methods.

DR. MCKEEN CATTELL: I wonder whether Dr. Baldwin can throw any light on the mechanism of the apparent increase in tolerance to epinephrine which sometimes follows the repeated use of the drug. I do not think we observe anything of that sort experimentally, although in the case of ephedrine there is an effect we note with repeated administration, which might correspond to something of the sort.

DR. BALDWIN: It is not easy to answer this question. I presume the reason patients become epinephrine

"fast" is that the tissues affected by the epinephrine have become exhausted with continued stimulation.

DR. CATTELL: The definite impression is that it is related to the repeated dosage rather than to any change in the condition of the disease itself?

DR. BALDWIN: The repeated dosage seems to me to be the important thing.

DR. DU BOIS: If bronchial spasm is not an important factor in man, how would this act then?

DR. BALDWIN: Dr. Gold indicated that some observers think that bronchial spasm is not an important factor in the human being. On the other hand edema might well be affected by epinephrine without the effect on the bronchial musculature through the constrictive effect on the bronchial vascular bed.

DR. JANET TRAVELL: You spoke about giving solutions of epinephrine hydrochloride subcutaneously. We know that epinephrine is very poorly absorbed from the subcutaneous tissues, and I wondered whether you ever give the solution intramuscularly.

DR. BALDWIN: We do not usually give solution of epinephrine hydrochloride intramuscularly. We have been under the impression that the intramuscular injection gives too rapid absorption. In cases in which we had given it intramuscularly there occurred severe throbbing, headache and extreme nervousness, which made us reluctant to repeat it. However, I might say that in the treatment of status asthmaticus we do use very small amounts of epinephrine in a solution of dextrose by intravenous infusion, and it seems to be very effective used that way.

DR. GOLD: I wonder whether I may say something about these patients who become tolerant to epinephrine in the course of time and develop status asthmaticus in which epinephrine is no longer useful. When their protracted attack of asthma subsides, they sometimes regain their responsiveness to epinephrine, do they not?

DR. BALDWIN: Yes.

DR. GOLD: Wouldn't this argue against the view that their temporary failure to respond is due to frequent use of epinephrine? Then I should like to ask whether the tolerance may not really be due to the fact that the mechanism of the attack of asthma is different in the late stages of asthma when epinephrine is no longer effective from what it is in the early stages. By way of illustration, if in the early stages it is mainly a matter of bronchial spasm we can overcome it readily, but if in the late stages it becomes more a matter of edema, then epinephrine might readily fail to overcome it. If in the late stages it becomes more a matter of paralysis of the capillary wall, epinephrine would then have as little effect as it has in angioneurotic edema, in which epinephrine is not as effective as it is in asthma.

DR. BALDWIN: This may be true.

DR. GOLD: A change in the disease itself rather than a development of tolerance as the result of the protracted use of the drug would be the formulation that I would suggest to explain the poor response to epinephrine in the late stages of asthma.

DR. TRAVELL: I was going to ask whether there were any other means of prolonging the action of epinephrine besides putting it up in an oily solution?

DR. DU BOIS: Such as rubbing the spot?

DR. BALDWIN: Rubbing of the injected area in the arm with most asthmatic patients is really not very effective. We find it rather a rarity when a patient comes in and says "I rubbed this area after I gave myself the injection and it worked." It is disappointing that it does not work more often.

DR. GOLD: The proposers claim that it works in about 20 per cent of the cases.

DR. BALDWIN: I would say that is liberal.

DR. DU BOIS: I have been disappointed in that method, hoping to demonstrate dramatic effects. I have almost always failed.

DR. ALICE BERNHEIM: Dr. Abramson at Mount Sinai has developed iontophoresis. He finds epinephrine used in that way very effective because that too prolongs the absorption.

DR. GOLD: Dr. Baldwin has spoken about slowing up the absorption of epinephrine by oily solutions in order to prolong the epinephrine action. Are we seeking to delay the absorption or exactly the opposite? When we give a dose of epinephrine subcutaneously for the treatment of asthma we can get effects within two or three minutes, which means that the drug enters the blood stream rapidly. Then, however, a marked local vasoconstriction takes place, which delays or prevents further absorption. An extract of the area of the skin made several hours later by Luckhardt and Koppanyi still contained epinephrine. The problem that needs to be solved is not one of delaying absorption but of accelerating it. Epinephrine delays its own absorption too much. I can readily see how an oily medium might protect the local vessels against the strong constrictor action and in that way prolong absorption. There are other ways in which that might be done. If one irritates the tissues and produces dilatation of the capillaries or paralysis, then epinephrine may continue to be absorbed over a longer period of time. I wonder whether an irritant in the solution of epinephrine might not be a useful expedient. Somewhat more than the 0.1 per cent sodium sulfite used as a preservative might serve the purpose.

DR. LIPPARD: Will Dr. Baldwin please discuss his experience with x-ray therapy in asthma?

DR. BALDWIN: It is a comparatively new method, and it is much too early to attempt a final evaluation. There are some cases of asthma that are helped by exposure of the chest to x-rays, and we usually combine it with irradiation of the sinuses. Some very dramatic results are obtained, and it has seemed to me that the cases helped most often have been the chronic infectious types of asthma with considerable wheezy bronchitis. In others it appears to be of no value. At present we have no definite knowledge of what its effect is on the tissues histologically or what the results will be after five years or more.

DR. WALTER MODELL: If one wants to avoid an increase in blood pressure in the asthmatic patient with hypertension would one use epinephrine or ephedrine?

DR. BALDWIN: In my experience an asthmatic patient with hypertension having an acute attack of asthma may be given epinephrine in small doses. It produces the usual relief of the acute asthmatic attack and the blood pressure is very apt to fall after its administration rather than rise. My preference is to use aminophylline in these cases.

DR. MODELL: How would that compare with the action of ephedrine in the same situation?

DR. BALDWIN: The effect of ephedrine is, of course, slower, but I have not been impressed that the use of ephedrine or epinephrine is harmful to asthmatic patients with hypertension. I would be interested to know what Dr. Gold thinks about that.

DR. GOLD: I cannot say whether or not they would be harmful, but if I had a choice I should use epinephrine instead of ephedrine for the attack of asthma in which hypertension is also a problem. The reason is that ephedrine is rapidly absorbed and epinephrine poorly absorbed. A small part of the dose of epinephrine enters the circulation very quickly, but too little to raise the blood pressure. One way to reduce the vasopressor effect of ephedrine is to give it with epinephrine, because the epinephrine will delay the absorption of the ephedrine.

STUDENT: How do calcium compounds act in relieving the asthmatic attack?

DR. GOLD: I can just state what calcium does that might conceivably be beneficial. It relaxes smooth muscle. This may explain how it relieves renal colic and lead colic. It reduces permeability of capillaries. It also reduces neuromuscular irritability, which is one of the problems in bronchial asthma. It is possible that those three actions would occasionally prove valuable in bronchial asthma.

DR. DU BOIS: If given by mouth, would there be enough calcium to do that?

DR. GOLD: No, it would have to be given by vein, and then the problem of intravenous calcium is one that ought to be considered with circumspection. There is considerable danger in rapid intravenous injection of calcium. A gram or a gram and a half of calcium gluconate in about a 10 per cent solution, injected in a period of from five to ten minutes, not more quickly, may be used.

MR. T. P. ALMY (Student): Would any one comment on or criticize the use of pitressin and a low sodium diet in the treatment of bronchial asthma?

DR. BALDWIN: I have not had any experience with it.

DR. DU BOIS: Suppose you tell us about it.

MR. ALMY: Cook and Stoesser reported in June 1938 six cases in children with bronchial asthma whom they treated with pitressin, a low sodium diet and a high water intake. The use of pitressin was continued for about thirty-six hours. In most cases they obtained some relief, and in some cases it was complete. In one instance the symptoms of asthma returned after the ingestion of 4 Gm. of sodium chloride.

DR. DU BOIS: Are there any comments on that work?

DR. LIPPARD: This work was based on the original observation that diets high in salt increased asthmatic symptoms and that diets low in salt or artificial fever resulted in a decrease in asthma. Cook and Stoesser also studied the effect of potassium chloride, the ingestion of which failed to increase the severity of asthmatic attacks and in some instances seemed to bring about some alleviation. The effects of alterations in electrolyte balance cannot be considered, however, without also considering the water metabolism. It has been shown that administration of pitressin causes not only retention of body water but also an increase in output of sodium chloride. Since the administration of pitressin was effective in decreasing the frequency of asthmatic attacks, despite retention of water, it appears that the loss of sodium chloride is the essential factor.

These studies are interesting from the theoretical point of view but the methods have not been used practically in a large group of patients. They should be of greatest value in diminishing the frequency and duration of attacks rather than in alleviating acute symptoms.

DR. BALDWIN: May I say something more about the use of these drugs we have discussed. We cannot emphasize too strongly that their use constitutes only a part of the treatment of the asthmatic. Those who see asthmatic patients frequently are greatly impressed with the importance of therapeutic measures other than drugs. If you go to the home of a patient who is having an attack of asthma, you should be on the alert for such factors as a feather pillow, a dog sitting on the bed, the cosmetics in use or a sinus infection complicating the asthma. The removal of those factors gives results often more dramatic than the administration of drugs.

DR. LIPPARD: For the benefit of students who have not seen many of these patients, the use of asthma powders should be mentioned. Seldom does one see a child with asthma who has not had some proprietary asthma powder burned in his room. I have been rather impressed with the possibility that the intensity of the attack may be increased by the use of these powders and have never been convinced that they produce relief. The air in a small room in which powders have been burned becomes practically suffocative after a few hours. I do not see how a healthy person could breathe very easily in such an atmosphere.

DR. ADE T. MILHORAT: I was wondering whether Dr. Lippard could tell us how he proceeds to give serum to a child who is sensitive. What precautions does he take?

DR. LIPPARD: Serum should be administered only with great caution to children who have histories of asthmatic attacks associated with exposure to animal danders or previous injections of serum. Most fatal reactions have occurred in this group. Both ocular and intracutaneous tests with diluted serum should be performed. If reactions are observed, a small amount of diluted serum may be given subcutaneously in the arm and absorption controlled if necessary by means of a tourniquet. If no generalized reaction occurs within thirty minutes, the remainder of the serum may be given slowly by intravenous injection, preferably diluted 1:10. Injection should be interrupted and epinephrine administered at the first sign of a generalized reaction.

DR. GOLD: I should like to ask one question of Dr. Baldwin: whether he feels quite convinced that potassium iodide would be more effective than a strong solution of sodium chloride in bronchial asthma. Is not the expectorant effect of the iodide merely a nonspecific reflex effect of the strong salt?

DR. BALDWIN: I have never used a strong solution of sodium chloride in the treatment of bronchial asthma but I am convinced that either sodium iodide or potassium iodide is a very useful drug in the treatment of chronic bronchial asthma.

DR. GOLD: I do not doubt its being useful. I venture the suspicion, however, that a strong solution of ordinary table salt would be equally effective.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE BOARD OF TRUSTEES REQUESTED THE COUNCIL ON PHARMACY AND CHEMISTRY TO MAKE A STUDY OF THE PROMISCUOUS USE OF BARBITURATES, PARTICULARLY WITH REFERENCE TO THE DANGEROUS USE OF THESE PRODUCTS BY THE PUBLIC. THE COUNCIL INVITED DR. W. E. HAMBOURGER OF WESTERN RESERVE UNIVERSITY TO DRAW UP A REPORT. THE COUNCIL CONSIDERED THIS REPORT AND AUTHORIZED ITS PUBLICATION, EXPRESSING APPRECIATION OF DR. HAMBOURGER'S EXCELLENT WORK. THIS REPORT WILL BE FOLLOWED BY ANOTHER ONE AT A LATER DATE.

PAUL NICHOLAS LEECH, Secretary.

A STUDY OF THE PROMISCUOUS USE OF THE BARBITURATES

THEIR USE IN SUICIDES

W. E. HAMBOURGER, PH.D.

CLEVELAND

At a meeting of the American Medical Association in June 1937 a resolution was introduced on the "Evils from Promiscuous Use of Barbituric Acid and Derivative Drugs," in which was included the following statement: "The evils of these drugs include habit formations, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicidal attempts, their improper use being a recognized causative factor in many motor accidents and their improper use being a recognized etiologic factor in some criminal assaults. . . ."

The widespread use of barbiturates is illustrated in table 1 by statistics of the manufacture and sale of the drugs in this country for 1936 compiled by the United States Tariff Commission. These figures were made available through President H. G. Bertram of the Winthrop Chemical Company, in whose opinion, because of the high United States duty, "sales" may be considered practically equivalent to consumption in the United States.

If the average therapeutic hypnotic dose for all the drugs in table 1 is taken as 1½ grains (0.1 Gm.), then the United States sales represent more than 810,000,000 doses a year, which is more than 2,200,000 doses a day. A large part of these drugs undoubtedly were used under medical supervision, often in much larger dosage (for instance, by psychotic patients and for basal anesthesia). What part was used without prescription or medical supervision is difficult to evaluate.

The problem of investigating the promiscuous use of the barbiturates divides itself conveniently into four headings: (1) the incidence of successful suicides by barbiturates, (2) the incidence of nonfatal poisoning, (3) chronic usage and (4) involvement in motor accidents and criminal offenses.

The present report is concerned with the incidence of accomplished suicides. A study of the other aspects is being made and will be reported on at a later date.

SOURCES OF INFORMATION

The data considered in this report come from two general sources: (1) medical literature and (2) vital statistics. The latter were obtained from United States census reports and from data solicited of the Metropolitan Life Insurance Company and medical examiners and coroners of several large cities.

From the Department of Pharmacology, Western Reserve University.

LITERATURE ON SUICIDES AND ACUTE POISONING

The available medical literature on the barbiturates, largely as listed in the *Quarterly Cumulative Index Medicus*, has been examined from January 1926 to July 1938, and the papers significant to the present topic are discussed later. As a rule, data on intentional and unintentional deaths are found intermingled.

The incidence of acute poisoning by barbiturates has increased markedly in recent years. Gillespie [1] in a thorough search of the literature collected 157 reports of published deaths up to the end of 1932, of which forty-four occurred since 1927. The deaths were divided as follows: Fifty-seven were definitely suicidal, thirteen more were questionably suicidal, nine deaths (including three suicides) occurred in addicts, and seven more (including two questionable suicides) were in suspected addicts.

Scarlett and MacNab [2] found a total of 408 deaths in the literature up to the end of 1934. This total represented 247 deaths in the two calendar years 1933-1934 (a discrepancy of four deaths as compared with Gillespie's figures). The great majority of the fatalities in their series were due to suicidal intent, indicating an increasing tendency in this direction from 1932 to 1934, since only one third of Gillespie's deaths were suicides.

In the Registrar-General's statistics for 1931 in England there were 5,149 suicides, of which only thirteen (0.26 per cent) were by barbiturates.[1]

Lowy,[3] analyzing 2,046 replies from hospitals in the United States to questionnaires covering the decade 1924-1934, reported 1,185 cases of barbiturate poisoning with 124 deaths. This includes only the three drugs barbital, phenobarbital and allonal. Some deaths were probably due to the aminopyrine in the allonal. These data may be compared with parallel figures of 139 cases of poisoning and seventeen fatalities by coal tar analgesics (antipyrine, acetophenetidin and acetanilid) and seventy-four cases of poisoning with four fatalities for acetylsalicylic acid. The hospitals had about 2,500,000 admissions a year or 25,000,000 for the decade, so the death rates were therefore approximately as indicated in table 2.

TABLE 1.—*Manufacture and Sale of Barbiturates in United States for 1936*

Drug	Manufacture		Sales	
	Pounds*	Grains†	Pounds*	Grains†
Coal tar barbiturates (essentially phenobarbital)	107,650	755,000,000	98,617	690,000,000
Non-coal tar barbiturates (essentially barbital, amytal, pentobarbital, and so on)	123,517	865,000,000	75,571	529,000,000
Totals	231,167	1,620,000,000	174,188	1,219,000,000

* Weights are avoirdupois; 1 pound = 7,000 grains.
† Value in grains is only approximate.

In Germany, from the end of 1918 to April 1936, Siebert [4] reported a total of 2,894 cases of suicide by solid, liquid and gaseous poisons which he had compiled from publications. Of these, 1,071 were due to barbituric acid derivatives. This is second only to illuminat-

1. Gillespie, R. D.: On Alleged Dangers of Barbiturates, Lancet **1**: 337-345 (Feb. 17) 1934.
2. Scarlett, E. P.; and MacNab, D. S.: Poisoning from Phenobarbital, with Report of Fatal Case and Review of Fatalities Previously Reported, Canad. M. A. J. **33**: 635-641 (Dec.) 1935.
3. Lowy, Otto: Comparative Study of Habitual Use of Barbiturates and Coal Tar Derivatives as Furnished by Reports from Various Hospitals Throughout the U. S., Canad. M. A. J. **31**: 638-641 (Dec.) 1934.
4. Siebert, H.: Selbstmorde durch Gift in Deutschland seit Kriegsende, Sammlung von Vergiftungsfällen **7**: C73-74, 1936.

ing gas, with 1,196 deaths. The other hypnotics together account for only 109 successful suicides. Unsuccessful suicides were not recorded. Presumably they exceed the successful cases in number. The actual number of suicides undoubtedly far exceeds the number reported in the literature. The percentage of suicides by barbiturates in Germany is much greater than the corresponding incidence in the United States, at least until recent years. This is presumably because barbiturates were introduced in Germany several years before their introduction in American medicine, and the "fashion" or "suicide cycle" has only recently turned to barbiturates as a means of self destruction in the United States.

TABLE 2.—*Death Rates for Various Drugs*

Drug	Deaths per Million Admissions*
Barbiturates	5.00
Coal tar derivatives	0.64
Acetylsalicylic acid	0.16

* In Lowy's conclusions, these figures are given tenfold too high. The figures given here are from part of his summary table and have been verified by direct correspondence with him.

VITAL STATISTICS ON SUICIDES

Those vital statistics which have been considered in this investigation list deaths due to asphyxiant gases (carbon monoxide, automobile exhaust, artificial illuminating gas and the like) separately from deaths due to drugs and poisons, liquid and solid. Since very few data on gases are available, the figures given here for suicides due to poisons refer only to liquid and solid poisons and do not include asphyxiant gases, except as specifically noted.

U. S. Bureau of the Census.[5]—The latest federal report contains statistics for the five year period 1932-1936 inclusive (table 3 A). During this interval there were 634 successful suicides by all barbiturates. This may be compared with 27,978 suicides by all poisons, solid, liquid and gaseous (of which 12,892 were due to gases alone). Deaths from all forms of suicide including the foregoing, numbered 96,256. Suicides by all barbiturates for the five year period, therefore, amounted to 4.20 per cent of all solid and liquid drugs (excluding gases), to 4.92 per cent as compared with suicides by poisonous gases only and to 2.26 per cent of all drugs and poisons, gaseous as well as liquid and solid. Barbiturate suicides constitute 0.66 per cent of suicides by all means, drug and otherwise.

The data for this five year period indicate a definite increase in the incidence of suicides by the barbiturates in the more recent years, while the incidence of suicides by poisonous gases has slightly declined. The frequency of suicides by the barbiturates, as compared to suicides from all causes, has more than doubled from 0.42 per cent in 1932 to 0.93 per cent in 1938, to make the five year average 0.66 per cent. Chart 1 shows a similar upward trend for barbiturates as compared to all solid and liquid poisons.

For each year there are listed a number of "accidental" barbiturate deaths almost identical with the number of suicidal deaths. Martland[6] has pointed out that ". . . a considerable number of undoubted suicides often signed out as 'accidental deaths due to overdose of sleeping powders, etc.' will be found classified under accidental deaths by poison." Such inaccuracies, if eliminated, would nearly double the percentage of suicides by barbiturates. The figures already given, therefore, must be considered as minimum values.

There were 171 suicides due to barbiturates in the United States in the year 1936, according to the official U. S. census[5] figures which represent the entire population of the states, District of Columbia, Hawaii, Puerto Rico and the Virgin Islands, an estimated total of 128,500,000. There were also 165 additional deaths due to barbiturates listed under the heading "Accidental, Other or Unidentified." If one assumes that a considerable number of these are suicides, as Martland[6] has suggested, then the probable true number of suicidal deaths caused by barbiturates in 1936 was close to 300.

Judging from the present increasing trend of suicides by the barbiturates, the probable number of suicidal deaths by this method in the United States in 1937 (census data not yet available) may have approached or even exceeded 400.

The Metropolitan Life Insurance Company.[7]—Claims were paid for 4,658 suicides among weekly premium-paying industrial policyholders in the three years 1935 to 1937 inclusive (table 3 B). Of these 680, or 14.6 per cent, were due to drugs and poisons. A barbiturate was specified as the drug used in forty-one cases, representing 6 per cent of all suicides by drugs and 0.88 per cent of suicides from all causes. Specifically barbital was the worst offender, causing eighteen deaths (44 per cent). Next in order came phenobarbital with ten deaths (24.4 per cent), amytal with eight deaths (19.5 per cent) and allonal with three deaths (7.3 per cent; some of these may conceivably have been due to aminopyrine), and neonal and ortal each with one death (2.4 per cent).

During the same three year period there were 332 claims for deaths due to accidental poisoning. Of these, twenty-seven deaths (18 per cent) were caused by

TABLE 3.—*Classification of Suicides*

	Location	Barbiturates No.	All Poisons* No.	All Poisons* % B‡	All Methods† No.	All Methods† % B‡
A	U. S. national census (1932-1936 incl.)	634	15,086	4.2	96,256	0.66
B	Metropolitan Life Insurance Company; weekly premium paying industrial policyholders for 1935, 1936 and 1937 (national distribution)	41	680	6.0	4,658	0.88
C	Large urban areas: (1928-1937 incl.)					
	Suffolk County (Boston), Mass.	34	203	16.7	1,272	2.67
	Cook County (Chicago), Ill.	128	1,197	10.7	6,523	1.96
	Borough of Manhattan, New York.	126	1,477	8.5	13,401	1.10
	Essex County (Newark), N. J.	15	183	8.2	1,423	1.28
	Cuyahoga County (Cleveland), Ohio	32	474	6.7	2,101	1.52
	City and county of San Francisco.	19	524	3.6	2,365	0.80
	City of St. Louis	9	435	2.0	1,870	0.48
	Totals for urban areas	363	4,493	8.1	28,965	1.25

* Suicides by all drugs and poisons including barbiturates but excluding gases.
† Total suicides: suicides by all methods (shooting, hanging, drowning, as well as drugs and gases).
‡ Percentage of barbiturates as compared to "all poisons" or "all methods."

5. Department of Commerce, Bureau of the Census, Vital Statistics, Special Reports; Number of Deaths in the U. S.: 1932-1936, **5**: 107-108 (June 4) 1938.
6. Martland, H. S., chief medical examiner of Essex County (Newark), N. J.: Private communication to the American Medical Association.
7. Dublin, L. I., third vice president and statistician of the Metropolitan Life Insurance Company: Private communication to the American Medical Association.

barbiturates; specifically, phenobarbital eleven deaths (40.8 per cent), barbital nine deaths (33.3 per cent), amytal five deaths (18.5 per cent) and allonal and neonal each one death (3.7 per cent).

Medical Examiners and Coroners.—We are indebted to the following thirteen local officers who replied to the questionnaire on the incidence of suicides by barbiturates:

S. R. Gerber, M.D., coroner, Cuyahoga County (Cleveland), Ohio.

T. A. Gonzales, M.D., chief medical examiner, Borough of Manhattan, New York.

T. B. W. Leland, M.D., coroner, city and county of San Francisco.

H. S. Martland, M.D., chief medical examiner, Essex County (Newark), N. J.

L. R. Padberg, M.D., coroner, city of St. Louis.

F. J. Walsh, M.D., coroner, Cook County (Chicago), Ill.

W. H. Watters, M.D., Associate Medical Examiner, Suffolk County (Boston), Mass.

W. J. Brickley, M.D., medical examiner, Northern Division Suffolk County (Boston).

N. H. Angell, magistrate, police court, Townson, Md.

E. DeRoma, M.D., medical examiner, Norfolk County (Walpole), Mass.

J. F. Golden, M.D., medical examiner, Norfolk County (Stoughton), Mass.

C. O. Nelson, M.D., medical examiner, Norfolk County (West Medway), Mass.

R. R. Ryan, M.D., medical examiner, Norfolk County (East Weymouth), Mass.

Of these thirteen replies, those of the first seven officials in the list are used in this analysis. One of the remaining six (Brickley) has been omitted because most of its data are included in another reply (Watters).

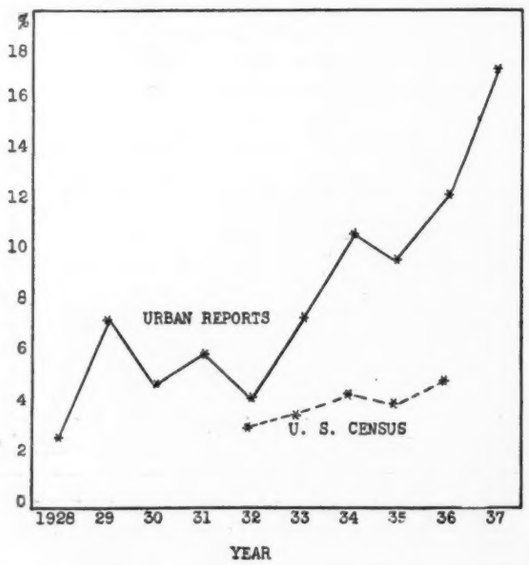

Chart 1.—Percentage incidence of suicides by barbiturates as compared to all solid and liquid poisons.

The last five in the list have been omitted because they do not contain any cases involving barbiturates.

The localities concerned in this report, it will be noted, are mainly the larger cities and their associated counties, namely Boston, Chicago, Cleveland, Newark, New York, St Louis and San Francisco. The period covered is the decade 1928-1937. An additional report for the commonwealth of Massachusetts covering the two years 1936 and 1937 only was also received from Dr. Watters. Although it increases the total number of suicides for those two years, it does not significantly alter the variously calculated percentage values for the urban localities.

A total of 28,965 suicides by all means (table 3 C) was reported. Of these, 4,493 deaths were due to solid and liquid drugs and poisons, exclusive of poisonous

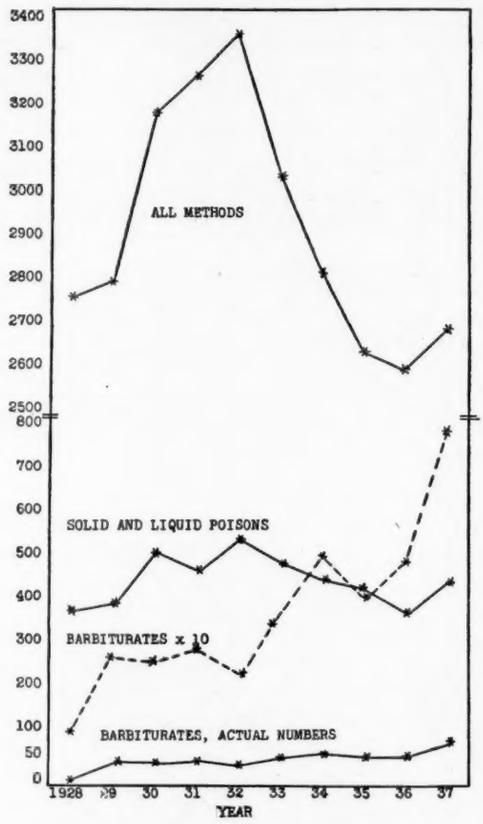

Chart 2.—Number of suicides in seven urban locations.

gases. There were 363 suicides by barbiturates, or 8.1 per cent of the suicides due to all poisons (except gases) and 1.25 per cent of the total suicides by all methods. The percentage of all suicides caused by barbiturates as obtained from this series (1.25 per cent) is nearly double the percentage found in the statistics previously mentioned of the Metropolitan Life Insurance Company (0.88 per cent) and the United States census (0.66 per cent). This indicates a higher incidence of suicide by barbiturates in the population of the larger cities than in the country population, since the last two figures include inhabitants of smaller city and country areas as well as of larger cities.

The percentage of suicides by barbiturates as compared with all poisons (excluding gases), varied widely in different localities from 16.7 per cent in Suffolk County (Boston) to 2 per cent in the municipality of St. Louis. The data for the various regions is given in table 3 C in decreasing order of incidence of suicides by barbiturates.

Six reports, obtained from Boston, Chicago, Cleveland, Newark, New York and St. Louis, listed separately the individual barbituric acid derivatives involved in successful suicides. There was a total of 344 deaths attributable to the barbiturates in this group. Barbital was considered responsible for a majority of 209 deaths (60.7 per cent). Next in descending order came phenobarbital with fifty-six deaths (16.3 per cent), amytal

with twenty-four deaths (7 per cent), allonal with seven deaths (2 per cent), pentobarbital with four deaths (1.2 per cent), ipral, neonal, phanodorn and seconal with one death each (0.3 per cent), and forty deaths (11.6 per cent) due to unidentified or unclassified barbituric acid derivatives. It is plausible that the high incidence of suicides by barbital is somewhat exaggerated and that some of these deaths should also be classified as due to an unidentified barbiturate, since there is a tendency on the part of lay persons, official as well as civil, to call nearly all barbiturates "barbital."

An analysis of the yearly total for the seven large urban areas discloses an upward trend in the frequency of usage of barbiturates as compared both to the total number of suicides and to the number due to solid and liquid poisons. The upward slope of the rise has significantly increased since 1933. This is clearly shown in chart 1, in which the yearly percentage of suicides by the barbiturates as compared with all solid and liquid poisons is graphed. Chart 1 also shows a similar rise, but from a lower level, for the national incidence of suicides by barbiturates as obtained from the U. S. census figures. The two curves clearly indicate the greater use of barbiturates by urban populations than by the national population as a whole (country as well as city).

Another view of the upward trend of the barbiturates as a means of suicide compared to other methods is shown in chart 2. These curves represent in solid lines the actual yearly numbers of suicides by all methods (top curve), by all solid and liquid poisons (middle curve) and by barbiturates (bottom curve). To permit easier comparison, the broken line represents the number of suicides by barbiturates magnified ten times. To conserve space the top curve has been arbitrarily lowered, but the original magnitude of the vertical scale has been maintained. It will be observed that the contour of the curve for barbiturates shows a distinct upward course, increasing since 1933, while there has been a parallel decline since 1933 in both the curves for all poisons and for all methods.

SUMMARY

1. More than 1,200,000,000 grains of barbituric acid derivatives was sold in the United States in 1936.

2. The total number of suicidal deaths by the barbiturates in the United States in 1936 was probably close to 300. The probable number in 1937 may have approached or even exceeded 400.

3. For the five years 1932-1936 the national incidence of suicides by barbiturates represents 4.2 per cent of all poisons (except gases) and 0.66 per cent of all methods used for suicide.

4. In seven large cities and their associated counties, for the decade 1928-1937, barbiturates represent 8.1 per cent of suicides by all solid and liquid poisons and 1.25 per cent of all methods used for successfully committing suicide.

5. The incidence of suicides by barbiturates is nearly twice as high in large cities as in the country as a whole, ranging from 2 per cent in St. Louis up to 16.7 per cent in Boston.

6. The number of suicides by barbiturates has shown a definite upward trend during the past decade, especially marked since 1933, although the frequency of suicides by liquid and solid poisons and of total suicides have both declined since 1933.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

CLAPP'S CHOPPED MIXED GREENS

Manufacturer.—Harold H. Clapp, Inc., Rochester, N. Y.

Description.—Chopped mixed greens containing equal proportions of kale, lettuce and swiss chard. Slightly seasoned with salt.

Manufacture.—Fresh kale, lettuce and swiss chard are cleaned, mixed in equal quantities, and chopped to particles of the desired size. Definite amounts of salt are added, the mixture is heated in an atmosphere of steam and automatically filled into cans, sealed and heat processed.

Analysis (submitted by manufacturer).—Moisture 93.6%, total solids 6.4%, ash 1.0%, sodium chloride 0.3%, fat (ether extract) 0.4%, protein (N × 6.25) 1.6%, reducing sugars as invert sugar 0.3%, sucrose (copper reduction method) 0.2%, crude fiber 0.6%, carbohydrates other than crude fiber (by difference) 2.8%, calcium (Ca) 0.078%, phosphorus (P) 0.036%, iron (Fe) 0.002%.

Calories.—0.21 per gram; 6 per ounce.

Vitamins.—The methods of preparation and processing are designed to retain the natural vitamin values to the highest degree consistent with adequate and safe heating processes. Contact of the product with air during processing is avoided as far as possible.

TRIX

Manufacturer.—New Foods, Incorporated, Chicago.

Description.—Puffed white corn grits, coated with cheese flavoring containing coconut oil, process cheese and certified color.

Manufacture.—Selected grades of white corn grits are cooked under steam pressure, slightly dried, passed between rolls under pressure, dried and inflated under high pressure. The expanded product is screened, toasted, coated with a cheese flavoring (a mixture of coconut oil and process cheese) and packed in a moisture-proof bag.

Analysis (submitted by manufacturer).—Moisture 3.3%, total solids 96.7%, ash 2.9%, fat (ether extract) 24.1%, protein (N × 6.25) 10.2%, reducing sugars as dextrose none, sucrose none, crude fiber 1.2%, carbohydrates other than crude fiber (by difference) 58.3%.

Calories.—4.91 per gram; 139 per ounce.

CRADLE BABY BRAND STRAINED AND SEEDLESS GRAPE JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained grape jam sweetened with sucrose. The jam may contain small amounts of added acid and/or pectin.

Manufacture.—Fresh Michigan Concord grapes are inspected, washed, stemmed and sent to the cooking rooms or frozen and stored. The fruit is sieved and the jam is prepared in essentially the same manner as that described for Cradle Baby Brand Strained and Seedless Fig Jam (THE JOURNAL, March 18, 1939, p. 1071).

Analysis (submitted by manufacturer).—Moisture 30.5%, total solids 69.5%, water-insoluble solids 0.4%, water-soluble solids 69.1%, ash 0.3%, protein (N × 6.25) 0.4%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 68.0%, acidity 0.6%.

Calories.—2.74 per gram; 78 per ounce.

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SATURDAY, APRIL 8, 1939

EXPERIMENTAL RENAL ATROPHY

Recently D. R. Drury [1] of the Department of Physiology, University of Southern California, has described a new method for the production of renal insufficiency of any desired grade in rabbits without the production of pathologic changes in the kidney epithelium. Numerous methods for the production of renal insufficiency in laboratory animals have been devised by previous investigators, such as the administration of nephrotoxins or other bacterial products, exposure to x-rays, surgical removal of one kidney with partial ablation of the other and, more recently, the application of Goldblatt ischemic clamps to the renal arteries. By all these technics, however, necrosis or other pathologic changes are produced in kidney tissue, particularly in rabbits. To avoid such cellular degenerations and to produce a purely quantitative reduction in renal function, Drury placed a loose silk ligature about the left renal artery of baby rabbits (400 Gm.) and allowed this loop to serve as a check to normal kidney growth. Adequate renal function was assured in these rabbits by a compensatory hypertrophy of the right kidney. As soon as the desired stage of dwarfism was demonstrable by palpation of the left kidney, the overgrown right kidney was removed. The animal was now dependent solely on the dwarfed left kidney for its total renal function. Drury regulated the diameter of the loop placed about the left renal artery by tying the silk ligature down on a wire of known diameter. The tie was made snugly but not tightly, so as to avoid crushing or damaging the accompanying artery, and the wire was withdrawn. The artery soon grew up to the size of the loop. Kidney growth was arrested at this stage. After removal of the overgrown right kidney, hypertrophy of the dwarfed left kidney is hindered by the restricted blood flow. By varying the size of the loop, any desired degree of renal dwarfism can be produced by this technic. In his current paper Drury reports dwarf kidneys as small as 20 per cent of the total normal combined kidney weight as well as kidneys of intermediary size varying from 30 to 45 per cent of the combined kidney weight.

The California physiologist found that hypertension is demonstrable in his rabbits submitted to this procedure even before removal of the hypertrophied right kidney. Since the rabbits presumably have fully compensated renal function before this removal, his result suggests an unknown endocrine factor (or "mediator") secreted by the stunted left kidney. The nature of this hypothelial direct or indirect vasopressin has not yet been determined. After removal of the hypertrophied right kidney the hypertension is increased. Effects of ablation of the stunted left kidney at this stage of his operation have not yet been tested.

Among the other suggestive effects of the Drury renal atrophy is loss of appetite and resulting loss of weight in practically all animals depending solely on dwarfed kidney function. Disturbance of the sense of equilibrium and anemia were also frequent. The average hematocrit reading falls to about 25 per cent, as contrasted with approximately 30 per cent in normal rabbits. Hemorrhages are frequently found in the intestinal walls, with an occasional hemorrhage into the eyeball. Hypertension is uniformly accompanied by cardiac hypertrophy. The average heart weight in his hypertension rabbits was about 4 Gm. per kilogram of body weight, as contrasted with 2.35 Gm. per kilogram in normal controls.

Drury's most significant result is his observation that a relatively high degree of hypertension develops in renal atrophy before the removal of the hypertrophied and presumably fully compensating right kidney. Whether or not female rabbits at this stage of his operation would develop eclampsia [2] if allowed to become pregnant has not yet been determined.

1. Drury, D. R: J. Exper. Med. **68**: 693 (Nov.) 1938.

MOTOR ACCIDENTS AT NIGHT

Numerous accidents at night on the highways continue to indicate the need of more adequate supervision of traffic. Whereas the enforcement of traffic laws has heretofore been mainly a daytime activity, many cities are now placing policemen on streets to handle traffic during the dark hours. Most motorists obtain their experience and training under daylight conditions; the problems that arise at night have not been sufficiently impressed on drivers, and traffic engineering has not kept pace with the situation.

The fatal motor accident rate at night, on the basis of traffic, is more than three times the accident rate during daylight. Motor vehicle fatalities during the hours of darkness have increased 43 per cent since 1930. The entire increase in traffic deaths in 1937 over those in 1936 resulted from the increase in night accidents. However, the recent emphasis on safe driving at night is producing results. The Committee on Night Accident Hazards of the National Safety Council reports for

2. Dill, L. V., and Erickson, C. C.: Proc. Soc. Exper. Biol. & Med. **39**: 362 (Nov.) 1938.

the first six months of 1938 a reduction of 26 per cent in the motor fatalities occurring during dusk and darkness.

In its analysis of the problem the committee finds that eyesight, driving experience and mental attitude are the important factors in the driver himself. He too is responsible for the associated problems of intoxication, speed, fatigue and age. The committee found that 78 per cent of the accidents in which the driver had been drinking occurred between 6 p. m. and 6 a. m. Further studies on intoxication as related to driving accidents are under way. Night driving involves a different technic from day driving because of the difference in visibility and in the reactions of the driver. Motorists should be taught night driving technic in their initial training. Much can be done to eliminate the hazards which are the result of low visibility at night. Highway officials should insist on the best design and maintenance of highways with adequate signs and warnings designed for good visibility at night. An improved type of lighting the highways is being installed in many places throughout the United States. The most common method of lighting the road is by means of headlights. Unfortunately the possibilities in head lamps on cars have not been developed as rapidly as those of other parts of the car. Headlights lose as much as half of their original effectiveness in a short time unless they are kept clean and adjusted. The committee recommends that officials consider the importance of securing adequate visibility for night driving and promote safety through installation of good illumination for heavily traveled and dangerous highways and by installation of flood lights at such hazardous locations as railroad crossings, intersections and special entrances.

Recently the Michigan Highway Department studied the use of reflector buttons on rural highways. Units were spaced 100 feet apart and 8 feet from the edge of the pavement on 80 miles of road between Lansing and Detroit. In the first three months of 1938 there was a reduction of 79 per cent in accidents on this stretch of highway, whereas on a control stretch of highway the reduction was only 19 per cent.

The night pedestrian is susceptible to accidents. Night pedestrian fatalities in Philadelphia increased from 56 per cent of the total number of night fatalities in 1935 to 73 per cent in 1937. In New Jersey in 1936, 67 per cent of the urban pedestrian fatalities and 83 per cent of the rural pedestrian fatalities happened at night. The committee urges that the pedestrian give the motorist every possible opportunity to see him. If it is necessary to walk at night in rural districts the pedestrian should carry a light when practicable and wear light colored clothing. Even carrying a white handkerchief is a considerable aid. Because the pedestrian sees the motor's headlights does not mean that the motorist sees him.

The night limits the speed for safe driving. The National Conference on Street and Highway Safety recently fixed forty-five miles an hour as the prima facie speed limit at night in sections where the corresponding day limit is fifty miles an hour. Lower speeds are necessary in many places. Drivers should lower the speed at night in order to keep their safe stopping distance within the range of clear visibility. Safe driving at night is a challenge to the ingenuity of the driver, who must be alert for every indication of objects ahead or changes in the road.

DOCTOR, HERE'S YOUR BOOK!

Some time has passed since "The Story of San Michele" by Axel Munthe emerged shyly from its publisher's sanctum and began to attract public attention. The widespread enthusiasm with which that romantic tale of medical performances was received seemingly initiated a deluge of works by and about doctors, unique in the history of American publishing. Such works as "An American Doctor's Odyssey" by Victor Heiser, "The Citadel" by Cronin, "Fifty Years a Surgeon" by Robert T. Morris, "Fifty Years a Country Doctor" by William N. Macartney, "The Horse and Buggy Doctor" by Arthur E. Hertzler, "Doctor Bradley Remembers" by Francis Brett Young, the confessions of George Sava, James Harpole and Frederick Loomis, and a whole host of minor novels constitute the main exhibits. Most of these works were important as literary contributions to public understanding of the medical scene.

Most recent to attract public consideration is a somewhat autobiographical work entitled "Doctor, Here's Your Hat" by Dr. Joseph A. Jerger, published by a firm only recently in the general field known as Prentice Hall, Inc. This animated diary had previously appeared in part serially in the *American Magazine* and was digested from that partial publication in the *Reader's Digest*. Its literary qualities need not seriously concern us here. Indeed, from a literary point of view it has attracted little, if any, attention. However, the publisher and the author are apparently not averse to using the machinery of modern journalism to keep the volume in the public eye. Of late much propaganda has been devoted to the promotion of the belief that the headquarters office of the American Medical Association is in complete control of the practice of medicine in this country, dictating who shall act as physicians in the hospitals and exercising a control and restraint never within the prerogatives or the practices of the organization. Apparently in the course of his practice Dr. Jerger has had occasional difficulties with both the medical staffs and the directors of several hospitals in Chicago. From time to time these groups have apparently indicated to him that it would be preferable for him to associate himself elsewhere. In these activities, most of which occurred long before the book was published, each of the hospitals acted independently. Obviously, when such institutions are chartered the

right to control the staff rests with the boards of trustees or directors. Nevertheless, Dr. Jerger and his publishers apparently continue to spread the word that organized medicine barred him from the hospitals and that he is denied their facilities by the American Medical Association. This statement, widely disseminated by press associations, has even been made editorially in some newspapers of good repute. The statement is untrue and without the slightest basis in fact. Amazing, however, is the apparent willingness of newspapers and other agencies of public information to disseminate such charges without attempting to secure verification. The American Medical Association has until now failed to pay the slightest attention either to Dr. Jerger or to his book. According to an interview with Dr. Jerger in the New York *World-Telegram,* a committee of the Chicago Medical Society, entirely independently, requested Dr. Jerger to come before it to explain certain pronouncements which were made by him personally. As far as we know, even here no official action has yet been taken.

In any other matter newspapermen would probably have exercised a reasonable amount of diligence to avoid the possibility of being made the unpaid publicity agents for a publishing venture. In this instance at least they have lent themselves, albeit unwittingly, to aid the dissemination of what is after all not an outstanding literary performance.

Current Comment

THE BRINKLEY CASE

The suit for libel and damages filed by John R. Brinkley against the Editor of *Hygeia* was called in the federal court at Del Rio, Texas, on Wednesday, March 22. A jury consisting largely of residents of the vicinity of Del Rio was impaneled and evidence began to be offered by the plaintiff on the afternoon of the same day. In the course of the trial the plaintiff, Dr. John R. Brinkley, offered in evidence not only his own testimony but that of his associates; also a number of character witnesses. It was the decision of the court that patients would not be allowed to testify as to the results of any procedures performed on them. For the defendant there appeared three experts: Drs. Alfred I. Folsom, Dallas; Benjamin Weems Turner, Houston, and J. Manning Venable, San Antonio; also a chemist of the American Medical Association, Dr. E. W. Schoeffel, Chicago. Furthermore, there were read into the record several depositions containing evidence prepared for a previous suit of a similar character which was dismissed. Among the exhibits offered were most of the pamphlets circulated by the plaintiff and a book concerned with his biography written by Clement Wood and entitled "The Story of a Man." Following the completion of the evidence, which required four full days, attorneys for both sides presented the case to the jury and the instructions were given to the jury by Judge R. J. McMillan. After a consideration of several hours, the jury returned its verdict for the defendant. In a future issue of THE JOURNAL (probably the issue of April 22) and also in *Hygeia* it is proposed to present a complete abstract of the evidence and the instructions of Judge McMillan to the jury.

YELLOW TYPHOID BACILLI

The transformation in the test tube of nonpathogenic flavobacteria into virulent typhoid bacilli, recently alleged by Dresel and his co-workers [1] of Leipzig, Germany, challenges conventional theories of epidemiology in typhoid. Eight years ago, several strains of yellow bacteria were isolated from urinary samples. By repeated "single cell" cultivation of these flavobacteria nonpigmented variants were eventually obtained morphologically, culturally and antigenically identical with standard strains of B. typhosus. Reversing the process, the investigators were able to dissociate from a standard laboratory strain of B. typhosus a yellow variant (Bacterium typhi flavum). More than sixty species of flavobacteria are recognized by American bacteriologists, most of them regarded as common saprophytes in surface waters. Several strains, however, such as Flavobacterium fecale and Flavobacterium esteroaromaticum, have been isolated from the intestinal contents of man or as presumptive contaminants from human necropsy material. Medical bacteriologists of the past have usually disregarded these yellow bacteria as of little clinical interest, since none of the known yellow strains had been shown to be pathogenic for man or lower animals. The conclusion of the Leipzig bacteriologists, however, that some species of flavobacteria are merely disguised forms of Bacillus typhosus may lead to a critical reexamination of the experimental evidence leading to this conclusion.

REPORTS OF OFFICERS AND THE BOARD OF TRUSTEES

In this issue of THE JOURNAL under the Organization Section appear the reports of the officers of the American Medical Association and of the Board of Trustees and of the various Councils and Bureaus which will be presented to the House of Delegates at the next annual session of the Association, to be held in St. Louis May 15-19. These reports constitute a survey of current problems in the field of medical practice and of the activities of the American Medical Association in relationship thereto. Every physician who holds membership in the organization, and particularly Fellows of the American Medical Association, should make a most careful study of this material. The responsibilities now assumed by organized medicine are vital in relationship to the health and welfare of the nation. The determination of the policies of the organization rests with the House of Delegates, which is itself directly representative of the membership. The material will be found of exceeding interest as marking an epoch in the affairs of the American Medical Association.

1. Dresel, E. G., and Graf, Willi: Arch. f. Hyg. u. Bakt. **119**: 153 (No. 3) 1937. Dresel, E. G., and Lötsch, Herbert, ibid. **120**: 286 (Nos. 4 and 5) 1938.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Secretary is respectfully submitted:

MEMBERSHIP AND FELLOWSHIP

A review of the Membership and Fellowship records for the five years from 1934 to 1938 inclusive shows that there has been a constant increase in the number of members as well as in the number of Fellows. Official reports of the Secretary submitted to the House of Delegates have included the following figures for each of these five years: In 1934 the number of members was 98,041 and the number of Fellows 60,714; in 1935 there were 99,536 members and 61,406 Fellows; in 1936 the members numbered 101,946 and the Fellows 62,997; in 1937 the number of members was 105,460 and the number of Fellows 66,296; in 1938 there were 109,435 members and 68,478 Fellows, and on March 1, 1939, the official membership list carried the names of 112,210 physicians, while the names of 69,468 Fellows were recorded on the Fellowship roster.

The figures here presented would seem to refute definitely statements emanating from various sources during these five years designed to indicate that there have been great disaffection in the ranks of the physicians of the United States and great diminution in the support of the profession generally for the established policies of the American Medical Association. During these same years, in which significant increases in both membership and Fellowship have been recorded, there has been a tremendous increase in the number of requests for service of various kinds. These requests have poured into the offices of the Association from state medical associations, from county and district medical societies, from independent organizations of physicians, from official governmental agencies, from the public press, from officers and members of civic groups and from the general public. While it is true that a considerable number of communications critical of the policies of the Association and its constituent and component societies have been received, it is also true that a tremendously larger number of communications have been received from the duly appointed officers of medical societies and other organizations, from hundreds of individual physicians and from many laymen indicating confidence in the medical profession of the United States in its organized capacity and as a profession and expressing appreciation of the efforts that have been made by the American Medical Association to carry out the aims and objects defined in its Constitution and By-Laws and to serve the public interest.

MEDICAL ORGANIZATION IN THE STATES

It will be seen from the figures presented in an accompanying table that physicians of 2,058 of the 3,139 counties of the United States are now included in the membership ot component county medical societies. On March 1, 1939, there were 386 counties in which no organization of physicians has been effected as compared with 397 such counties in 1938. Very considerable progress has been made in promoting the efficiency of the official machinery of a number of constituent state medical associations. A larger number of component county medical societies now employ full time secretaries or executive secretaries than ever before, and there can be no doubt that through the employment of full time personnel the work of county medical societies is better organized and more efficiently carried out than otherwise could be done.

Organization of Constituent State Medical Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations: Number of Counties in State Not Organized		Number of Physicians in State 15th Ed. A.M.A. Directory	Number of Members of State Associations		Number of A.M.A. Fellows in State
			1938	1939		1938	1939	
Alabama	67	67	..	..	2,072	1,518	1,559	566
Arizona	14	13	1	1	562	339	329	259
Arkansas	75	60	9	11	1,850	1,068	1,036	426
California	58	39	10	10	11,278	5,906	6,219	4,502
Colorado	63	28	..	..	1,923	1,135	1,140	742
Connecticut	8	8	..	..	2,503	1,621	1,699	1,064
Delaware	3	3	..	..	326	209	209	135
District of Columbia	..	..	..	..	2,141	824	849	659
Florida	67	34	21	19	2,072	1,231	1,275	701
Georgia	159	93	44	46	2,756	1,793	1,818	704
Idaho	44	10	..	..	426	227	268	161
Illinois	102	92	6	6	11,942	7,485	7,606	4,756
Indiana	92	83	1	1	4,081	3,087	3,136	1,736
Iowa	99	97	..	..	3,100	2,414	2,406	1,429
Kansas	105	69	20	19	2,117	1,509	1,512	982
Kentucky	120	114	4	4	2,762	1,770	1,829	795
Louisiana	64	42	18	17	2,200	1,324	1,446	766
Maine	16	15	1	1	987	690	722	396
Maryland	23	23	1	..	2,821	1,384	1,401	920
Massachusetts	14	18	..	..	7,528	5,109	5,189	3,113
Michigan	83	54	..	..	6,142	3,987	4,196	2,425
Minnesota	87	34	1	1	3,426	2,519	2,524	1,565
Mississippi	82	21	1	1	1,495	945	1,076	342
Missouri	114	81	11	11	5,348	3,216	3,231	1,931
Montana	56	16	25	25	520	357	363	238
Nebraska	93	49	19	16	1,705	1,094	1,086	711
Nevada	17	5	12	12	148	104	107	71
New Hampshire	10	9	..	..	616	498	511	284
New Jersey	21	21	..	..	5,433	3,399	3,604	2,488
New Mexico	31	15	14	16	419	238	254	171
New York	62	61	1	1	25,613	16,080	16,606	10,268
North Carolina	100	74	19	18	2,663	1,616	1,689	809
North Dakota	53	13	10	10	508	413	390	254
Ohio	88	87	2	2	9,117	6,099	6,271	3,712
Oklahoma	77	65	7	7	2,364	1,470	1,456	793
Oregon	36	24	3	2	1,386	746	774	527
Pennsylvania	67	60	6	6	13,205	8,874	9,077	5,968
Rhode Island	5	6	1	1	938	488	494	342
South Carolina	46	39	2	2	1,354	897	943	409
South Dakota	69	12	2	1	535	320	317	185
Tennessee	95	60	24	24	2,917	1,727	1,719	827
Texas	254	128	15	15	6,795	4,230	4,246	2,257
Utah	29	9	4	4	567	443	449	270
Vermont	14	10	3	3	501	373	374	215
Virginia	100	47	9	9	2,818	1,739	1,756	988
Washington	39	24	13	13	2,123	1,401	1,377	887
West Virginia	55	30	5	5	1,823	1,207	1,202	685
Wisconsin	71	52	..	..	3,436	2,435	2,450	1,523
Wyoming	24	11	11	11	266	166	170	114
Alaska	..	..	..	..	65	36	39	20
Hawaii	5	4	1	1	410	266	277	124
Isthmian Canal Zone	..	..	..	..	198	118	122	19
P. I. (Provinces)	56	22	40	34	3,107	921	1,054	50
Puerto Rico	7	7	..	..	445	370	358	70
Foreign	..	..	..	..	26	...	...	185
	3,139	2,058	397	386	173,879	109,435	112,210	66,537
Commissioned medical officers								2,931
								69,468

FIELD WORK AND CORRESPONDENCE

Official representatives of the American Medical Association have attended more meetings of state and county medical societies and have appeared before more lay audiences within the last year than in any preceding year. It is not possible to give a

thoroughly dependable estimate of the number of persons that have composed either the professional or the lay audiences addressed by these representatives, but it is believed that the lay audiences have numbered more than 150,000 persons and that audiences composed of physicians have numbered from 25,000 to 40,000. Some constituent state medical associations and some of the larger component county medical societies have maintained speakers' bureaus through which speakers have been provided to address civic groups and student bodies of public schools, colleges and universities. The nation wide radio program of the American Medical Association has been heard by a very large but undetermined number of children in schools and of older persons in their homes.

A veritable mass of correspondence pours into the offices of the Association each day, a large part of which consists of communications from the lay public.

In these several ways the aims and objects of the Association and the nature and scope of its work are brought to the attention of both the profession and the public.

Special Session of the House of Delegates

A special session of the House of Delegates was held in Chicago Sept. 16 and 17, 1938, for the purpose of giving official consideration to the national health program submitted to the National Health Conference held in Washington, D. C., in July of 1938 and to other matters submitted by the Board of Trustees. Copies of the proceedings of this special session have been sent to each member of the House of Delegates in attendance at that session, and an account of the proceedings has been widely distributed among physicians and among the members of legislative bodies and of various other groups.

Annual Conference of Secretaries of Constituent State Medical Associations

The regular Annual Conference of Secretaries of Constituent State Medical Associations was not held in 1938. All state secretaries and the editors of all official journals of state medical associations were invited to attend the special session of the House of Delegates held in Chicago September 16 and 17, and most of the members of these two groups attended that session.

Reports of Delegates to State Associations

It has been most gratifying within recent years to note the completeness of reports submitted by members of this House of Delegates to their constituent state medical associations. In some instances these reports have been published in state medical journals almost immediately after the annual meetings of the House, while in other instances such reports have not been submitted until the meetings of the houses of delegates of the state associations.

There can be little doubt that the members of the Association generally are better informed through the publication of these reports prepared and presented by members of this House of Delegates than they otherwise would be, and their interest in the affairs of the Association and their knowledge of the nature and scope of its activities will be increased and enhanced if such reports are made available to them.

Memorials and Resolutions

Up to the time of the preparation of this report, no memorials, resolutions or proposed amendments to the Constitution and By-Laws have come to the Secretary for transmission to the House of Delegates.

In Appreciation

In offering this, his seventeenth consecutive report submitted to the House of Delegates, the Secretary desires to express his grateful appreciation of the helpful consideration and the kindly assistance extended to him by the officers of the Association, by members of the House of Delegates and by the officers and a great many members of component county medical societies and of constituent state medical associations. He also desires to acknowledge his gratitude for the cordial cooperation extended by members of the administrative personnel of the Association and especially his gratitude for the loyal and efficient service of those immediately associated with him in the work of the Secretary's office.

Respectfully submitted.

OLIN WEST, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

Within the last few years, many problems of the most important interest to medicine have demanded earnest consideration by medical organizations. Most of these problems are not at all new, having been created out of developments that have naturally followed on the continued advancement of scientific medical knowledge and the need for improved methods for applying such knowledge. Some of these problems have been brought up more acutely because of the activities of various agencies outside the medical profession that are most largely concerned with political considerations or because of long-continued economic disturbances. The existing situation is one that has created tremendously larger demands than ever before on the time and effort of the officers, official bodies and administrative personnel of the American Medical Association. It has necessitated expansion in several of the divisional offices and has required some extension in both the nature and the scope of Association activities. The volume of work done in practically every department during the last year was very considerably larger than in any preceding year. Present indications are strongly to the effect that even greater demands will be made on the Association in future years and it is reasonable to expect that further expansion of the Association's facilities will be required.

Business Operations

Gross income from all sources for the year ended Dec. 31, 1938, amounted to $1,758,147.09, representing an increase of $2,837.25 over the total income of the preceding year. Total expense for the year ended Dec. 31, 1938, amounted to $1,769,548.60, an increase of $136,481.68 over total expenditures for the year 1937. The net loss for the year was $11,401.51.

Payments received for Fellowship dues and subscriptions in 1938 amounted to $655,875.91 as compared with $670,170.31 in 1937. Total receipts from the sale of advertising space in 1938 amounted to $875,367.43 as compared with $841,042.57 in the preceding year. Income received from interest on investments in 1938 was $86,857.26 and, through the sale of securities, the sum of $2,831.25 was realized.

Collections from subscriptions and Fellowship dues, notwithstanding an increase in both the number of Fellows enrolled and the number of subscribers to THE JOURNAL, were less in 1938 than in the preceding year by the sum of $14,294.40. Receipts from the sale of advertising space were larger than in the preceding year by the sum of $34,324.86. Interest received on investments in 1938 exceeded receipts on this account in 1937 by the sum of $3,293.52. Office salaries and wages in 1938 amounted to $259,953.13, an increase over the preceding year of $11,292.55. The factory payroll in 1938, amounting to $226,389.15, was larger than in 1937 by the sum of $14,867.72. The cost of paper in 1938 was greater than in the preceding year by a sum slightly in excess of $10,000. Expenditures for first class postage in 1938, amounting to $38,871.82, were larger than in 1937 by the sum of $3,341.69, and expenditures for second class postage in 1938 exceeded those of the preceding year by the sum of $2,591.33.

Expenditures incident to the operation of the various councils, bureaus and departments of the Association during the year covered by this report were $458,499.27, representing an increase of $26,496.58 over the expenditures of the preceding year.

Expenditures for legal services, amounting to $67,096.56, were larger in 1938 than in 1937 by the sum of $43,807.96. These larger expenditures were made necessary because of the indictment of the Association at the instance of the federal Department of Justice for alleged violation of the Anti-Trust Laws; a ruling of the Bureau of Internal Revenue under which the Association was made liable for the payment of Social Security taxes and classified as a business league rather than a scientific and educational organization, and several suits filed against the Association.

The building and equipment of the Association have been maintained to the best possible advantage. As this report is

being prepared, some new machinery, including a gathering machine of the latest model, is being installed at a cost of approximately $36,000.

The number of employees of the Association is now slightly less than 600, but this number will be considerably increased when the preparation of the next edition of the American Medical Directory is begun.

A more detailed presentation of income and expenditures will be found in the reports of the Treasurer and the Auditors, which are submitted as a part of this official report of the Board of Trustees.

Summary

Total income in 1938 was larger than in 1937, but the increase in total expenditures was considerably larger than the increase in income. Income from interest on investments was slightly larger in 1938 than in the preceding year. Total expenditures were larger than income by the sum of $11,401.51.

The Journal of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION continues to occupy the place achieved in previous years as a leader in the dissemination of knowledge of advances in medical science and as a representative of the point of view of the organized medical profession of the United States.

TABLE 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Jan. 1, 1939; Also Gain or Loss in Each State*

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	516	246	762	7	..
Arizona	243	117	360	16	..
Arkansas	391	236	627	46	..
California	4,180	2,534	6,714	513	..
Colorado	645	277	922	..	45
Connecticut	1,019	627	1,646	72	..
Delaware	123	81	204	..	5
District of Columbia	624	570	1,194	63	..
Florida	694	368	1,062	48	..
Georgia	630	405	1,035	..	11
Idaho	150	113	263	13	..
Illinois	4,368	2,850	7,218	42	..
Indiana	1,596	664	2,260	47	..
Iowa	1,237	426	1,663	14	..
Kansas	876	286	1,162	..	..
Kentucky	727	360	1,087	17	..
Louisiana	675	343	1,018	39	..
Maine	377	153	530	15	..
Maryland	869	652	1,521	55	..
Massachusetts	2,845	1,687	4,532	82	..
Michigan	2,200	1,254	3,454	..	25
Minnesota	1,373	621	1,994	18	..
Mississippi	294	138	432	21	..
Missouri	1,735	894	2,629	..	24
Montana	199	101	300	19	..
Nebraska	623	266	889	..	32
Nevada	64	33	97	7	..
New Hampshire	271	97	368	19	..
New Jersey	2,367	1,508	3,875	109	..
New Mexico	161	79	240	6	..
New York	9,475	5,940	15,415	186	..
North Carolina	751	536	1,287	48	..
North Dakota	211	85	296	13	..
Ohio	3,450	1,570	5,020	31	..
Oklahoma	681	315	996	45	..
Oregon	465	300	765	59	..
Pennsylvania	5,626	2,601	8,227	82	..
Rhode Island	331	202	533	..	2
South Carolina	348	240	588	14	..
South Dakota	178	117	295	16	..
Tennessee	744	436	1,180	20	..
Texas	1,902	847	2,749	97	..
Utah	237	87	324	5	..
Vermont	207	82	289	5	..
Virginia	931	441	1,372	51	..
Washington	793	365	1,158	39	..
West Virginia	610	295	905	26	..
Wisconsin	1,354	646	2,000	..	21
Wyoming	105	52	157	4	..
U. S. Army	...	173	173	2	..
U. S. Navy	...	252	252	11	..
U. S. P. H. S.	...	96	96	96	..
Alaska	18	26	44	7	..
Canada	13	811	824	..	33
Cuba	3	103	106	3	..
Hawaii	106	73	179	..	5
Mexico	8	86	94	..	28
Panama	16	36	52	..	2
Philippine Islands	45	229	274	44	..
Puerto Rico	60	64	124	..	11
Virgin Islands	2	5	7	..	..
Foreign	111	2,967	3,078	157	..
Advertisers, agents	...	...	499	..	30
Exchanges	...	...	320	12	..
Complimentaries	...	...	118	17	..
Total on mailing list			99,854	2,378	274

Among the new features developed during the past year has been the Student Section, which appears once each month, the first issue appearing in July 1938. In this section are articles, abridgments of essays and medical news pertaining especially to student activities and to medical schools. This section of THE JOURNAL was established by the Board of Trustees in order to inform the practicing physicians of tomorrow concerning the problems of today. Much of the material is developed by educators and those interested in the problems of medical education, yet opportunity has been given also to the students, to interns and to residents to discuss problems of special concern to them. A questionnaire circulated among students in twenty different medical schools indicated that the majority had a favorable point of view toward the material thus published. It is proposed to continue the development of this department to meet the need which is apparent for contact between the student, the intern, the resident and the practicing physician.

TABLE 2.—*Percentage of Physicians Receiving The Journal* *

State	Number Receiving Journal	Physicians in State: A. M. A. Directory	Approximate Percentage Receiving Journal
Alabama	762	2,072	37
Arizona	360	562	64
Arkansas	627	1,850	34
California	6,714	11,278	59
Colorado	922	1,923	48
Connecticut	1,646	2,503	66
Delaware	204	326	62
District of Columbia	1,194	2,141	56
Florida	1,062	2,072	51
Georgia	1,035	2,756	38
Idaho	263	426	61
Illinois	7,218	11,942	60
Indiana	2,260	4,081	55
Iowa	1,663	3,100	53
Kansas	1,162	2,117	54
Kentucky	1,087	2,762	39
Louisiana	1,018	2,200	46
Maine	530	987	54
Maryland	1,521	2,821	54
Massachusetts	4,532	7,528	60
Michigan	3,454	6,142	56
Minnesota	1,994	3,426	58
Mississippi	432	1,495	29
Missouri	2,629	5,348	49
Montana	300	520	57
Nebraska	889	1,705	52
Nevada	97	148	65
New Hampshire	368	616	59
New Jersey	3,875	5,433	71
New Mexico	240	419	57
New York	15,415	25,613	60
North Carolina	1,287	2,663	48
North Dakota	296	508	58
Ohio	5,020	9,117	55
Oklahoma	996	2,364	42
Oregon	765	1,386	55
Pennsylvania	8,227	13,205	62
Rhode Island	533	938	57
South Carolina	588	1,354	43
South Dakota	295	535	55
Tennessee	1,180	2,917	40
Texas	2,749	6,795	40
Utah	324	567	57
Vermont	289	501	57
Virginia	1,372	2,818	48
Washington	1,158	2,123	54
West Virginia	905	1,823	49
Wisconsin	2,000	3,436	58
Wyoming	157	266	59

* This table gives the number of physicians (based on the Fifteenth Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

The Organization Section of THE JOURNAL has been largely devoted to problems of current interest in the fields of legislation and medical economics. Of special interest have been the reports of the results of the surveys of medical service carried out in individual counties and municipalities as well as in some states.

Other features currently appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION which have aroused considerable comment are the series of articles on the vitamins, a series of pharmacologic and therapeutic conferences held in the New York Hospital, and the clinical articles developed during the last annual session of the American Medical Association. Thus, while THE JOURNAL has kept abreast of the most important advances in research, it has not neglected the clinical aspects of daily work.

The department of Queries and Minor Notes has maintained its popularity. Special issues have appeared during the year devoted to the hospitals, to medical education, to state licensure and to the annual session. Among the research projects conducted by THE JOURNAL have been cooperation with the United States Public Health Service in determining the availability of typing for pneumococci, the annual reports on deaths from typhoid fever and from diphtheria, and a special survey devoted to Fourth of July accidents.

Table 1, included in this report, indicates the number of Fellows and Subscribers on the mailing list of THE JOURNAL in each state on Jan. 1, 1939. There is also shown in this table the number of Fellows and subscribers in other countries, the number of copies of THE JOURNAL sent to advertisers and subscription agents and the number sent as exchanges and complimentary subscriptions. Table 2 indicates the number and the approximate percentage of physicians in each state who receive THE JOURNAL.

The circulation of THE JOURNAL on Jan. 1, 1939, was 99,854, an increase of 2,104 over the preceding year.

Summary

It has been the earnest purpose of the Board of Trustees and of the Editorial Department to maintain The Journal of the American Medical Association in its established position of leadership in the field of medical journalism and to increase its usefulness both as a scientific periodical and as a defender of the public interest.

Among the new features developed during the past year has been the Student Section, which appears once each month, dealing with matters pertaining especially to student activities and to medical schools. It is proposed to continue the development of this department of The Journal so as to meet the apparent need for contact between the student, the intern, the resident and the practicing physician.

The Organization Section of The Journal, devoted to discussions of problems of current interest in the fields of legislation and medical economics, has been well received and will be further developed as opportunity offers.

Special articles dealing with clinical aspects of the daily work of physicians have been published from time to time and apparently have aroused much interest and have been made the subject of much favorable comment.

The popularity of the department of Queries and Minor Notes has been maintained and is apparently serving an important purpose. The publication of special issues devoted to medical education, hospitals, licensure and other phases of the Association's activities have been continued. The Journal has cooperated with various agencies, including agencies of the federal government, and has published annual reports dealing with mortality due to typhoid fever and diphtheria and has undertaken a special survey pertaining to Fourth of July accidents.

Special Journals

The usual high standards, both scientific and mechanical, have been maintained for the special journals during 1938. The number of pages of reading material published was approximately the same as in 1937, except in three of the periodicals, viz. the ARCHIVES OF DERMATOLOGY AND SYPHILOGY, the ARCHIVES OF OTOLARYNGOLOGY and the ARCHIVES OF PATHOLOGY. Increases in the number of pages of practically all the periodicals will be necessary if the material that is accepted is to be published within a reasonable length of time. There was an increase in the subscription list of each of the periodicals, ranging from 75 to 225 and totaling 1,168.

During 1938 there was a considerable reduction in the number of pages of advertising carried in these journals, namely 778 as compared with 1,104 in 1937, the result probably of retrenchment on the part of business houses. The loss in receipts from advertising during 1938 as compared with 1937 was $2,240.71.

A special issue of the ARCHIVES OF PATHOLOGY was published in July 1938 as a testimonial to the life and work of Dr. Ludvig Hektoen on the occasion of his seventy-fifth birthday. This issue comprised 448 pages of articles contributed by physicians who were his students or who were closely associated with him in his many activities.

Owing to the unfortunate illness of Dr. Dean DeWitt Lewis, chief editor of the ARCHIVES OF SURGERY, Dr. Waltman Walters was appointed chairman pro tem of the Editorial Board. Drs. Arthur W. Allen of Boston, Alfred Blalock of Nashville, Lester R. Dragstedt of Chicago and Walter E. Dandy of Baltimore have been added to the Editorial Board in order to develop the periodical still further along practical lines.

In addition to the exhaustive articles in experimental surgery published in the past, shorter articles dealing with progress in surgery of clinical application, general reviews of the literature and editorials in which debatable surgical topics can be discussed will be published.

Summary

Slight increases were recorded in the total circulation of all the publications in this group. Only three of the special journals produced income exceeding the costs of publication, namely the Archives of Otolaryngology, the Archives of Ophthalmology and the American Journal of Diseases of Children. Net income for the American Journal of Diseases of Children barely exceeded the cost of publication.

The net loss on the entire group of special journals was $28,883.35, as compared with $25,958.37 in 1937 and $33,821.30 in 1936.

Library

A geographic analysis of requests for service coming to the Library of the American Medical Association indicates that the greatest number of requests come from Illinois, New York, Ohio and Pennsylvania. Nevertheless, every state in the United States and every province in Canada has availed itself of such services. During 1938, 13,012 periodicals were lent to subscribers, an increase of 2,253 loans over 1937.

The Package Library Service continues to supply material to great numbers of inquirers, notwithstanding the fact that similar services have now been set up by several of the individual state medical societies. During 1938, 3,016 packages were distributed to physicians of the United States and of Canada. The subjects on which packages were most frequently requested were alcoholism, arthritis, pneumonia, sulfanilamide, syphilis, tuberculosis and vitamins.

In addition to the lending of periodicals and of packages of references, the Library answered by letter and by telephone approximately 5,000 individual inquiries on medicobibliographic subjects. Moreover, more than 1,500 persons visited the Library during the year in search of material which was supplied to them.

The great demands on the space available in the headquarters office of the Association made necessary during the year the removal of the Employees' Library from the special room which it occupied to a place on the Library floor. The total circulation for the year was 5,100 books. The Employees' Library now owns 2,030 books and subscribes to twenty magazines. Moreover, material is regularly received by loan from the Chicago Public Library.

The QUARTERLY CUMULATIVE INDEX MEDICUS constitutes the major project of the Library department. During 1938 forty additional periodicals were added to the list of periodicals regularly indexed and fifty-six periodicals were selected for occasional indexing of important items. The universal acclaim tendered to this project, which is maintained by the American Medical Association at a considerable loss, indicates not only the necessity of the service but the excellence of its conduct.

Summary

The activities of the Library have been continued along the same lines previously followed. There was a considerable increase in the number of periodicals lent to subscribers, and the Package Library has continued to

supply material largely for the use of members of the Association who do not have ready access to medical libraries. Approximately 5,000 individual inquiries on medicobibliographic subjects were answered during the past year, and more than 1,500 persons visited the Library in search of such material. The Quarterly Cumulative Index Medicus constitutes the major project of the Library department.

Quarterly Cumulative Index Medicus

There was a slight increase in 1938 in the number of subscribers to the QUARTERLY CUMULATIVE INDEX MEDICUS. The cost of production over income was $43,034.71, as compared with $42,616.32 in 1937.

It is undoubtedly true that the general use of the QUARTERLY CUMULATIVE INDEX MEDICUS in libraries has increased, but the number of subscriptions has not grown correspondingly. The INDEX is available for the use of individual physicians and investigators in practically all important medical libraries, in several general libraries and in some hospitals, where a single volume is available for the use of many individuals.

Standard Classified Nomenclature of Disease

The publication of this guide to nomenclature was assumed by the Board of Trustees of the American Medical Association at the request of the National Conference on Nomenclature of Disease, which first issued the volume in 1932. This nomenclature has been approved by most of the leading special scientific organizations in the United States, and most of them have cooperated in its development.

Since the project was taken over by the American Medical Association, nearly 2,000 copies have been sold.

A questionnaire circulated to the hospitals of the United States indicates that 753 hospitals use the Standard Classified Nomenclature.

Steps are being taken toward the preparation of a new revised edition subsequent to the national conference, which will be called in 1940.

Preparation has also been made to undertake the Standard Classified Nomenclature of Surgical Operations.

The New York Hospital has tendered to the American Medical Association the use of its Nomenclature of Operations as a basis for the development of the standard list. A list of consultants is being developed for this purpose and also for revision of Nomenclature of Disease.

Hygeia

The maintenance of the circulation of HYGEIA, the recognition of its worth particularly by educators throughout the United States, and the innumerable citations from its pages appearing regularly in digest publications, in other health periodicals, in bulletins of various industrial and similar organizations and in newspapers indicate the manner in which HYGEIA has become a source book for information on health throughout the nation. Moreover, several radio programs are now devoted largely each week to citation of material taken from this publication. Beginning with the current volume, improvements were made in the typography, arrangement and illustration of the magazine. A prompt response ensued on the part of numerous readers. Every effort is being made by the Board of Trustees to further the development of this publication as an invaluable contact directly with the public and as a means of extending more widely the benefits of medical science.

The circulation of HYGEIA has been maintained above the 100,000 mark. Through the splendid efforts of the Woman's Auxiliary in Tennessee, an order was received from the state of Tennessee for 6,182 subscriptions whereby the magazine was placed in the public schools throughout Tennessee. Income from the sale of advertising space in HYGEIA has rather steadily declined.

The loss incurred on account of the publication of HYGEIA in 1938 was $18,896.12, as compared with a loss of $31,004.90 in 1937. The indicated reduction was accomplished by resorting to all possible economies that would not interfere with improvement in the magazine.

Summary

Improvements have been made in the typography, arrangement and illustration of Hygeia. The magazine apparently has established itself in many schools as a source book for information on health, and material from its columns is being reproduced in a large number of lay publications and has been used to some extent in radio programs.

The circulation of Hygeia has been maintained above 100,000. The net loss on this publication for the year 1938 was $18,896.12, as compared with a loss of $31,004.90 in 1937.

Book Publications of the American Medical Association

While the American Medical Association does not contemplate any large invasion of the field of book publication, the assembling of material first issued in the form of feature articles is a logical step in its work. The volumes now available include "The Handbook of Therapy," in its eleventh edition, "The Technic of Medication," in its third edition, "Medical Writing: Its Art and Technic," "A. M. A. Intern's Manual," "The Primer on Fractures," now in its fourth edition, "The Handbook of Physical Therapy," in its third edition, "Medicolegal Cases" and "Simple Lessons in Human Anatomy." In the course of preparation are a new volume on the vitamins and a series of twenty-four cases entitled "The Pharmacopeia and the Physician," prepared in cooperation with the United States Pharmacopeial Committee. The Association publishes, moreover, the special volumes issued by the Council on Pharmacy and Chemistry and the Bureau of Investigation. In process of preparation is a new book to be called "Accepted Foods," which is being prepared under the auspices of the Council on Foods.

American Medical Directory

The American Medical Directory is in some respects one of the most important of the Association's publications. The information contained in this volume is essential for the purposes of the Association itself and is of great value to constituent state and territorial medical associations, to component county medical societies and to many agencies, governmental and otherwise, that find it necessary to have dependable information concerning the medical profession and medical institutions.

The Fifteenth Edition of the American Medical Directory was published in 1938. The names and addresses of the legally qualified physicians of the United States and Canada, together with biographic material concerning them, are published in the Directory. The number of names listed in 1938 was 188,916, as compared with 183,312 in the Fourteenth Edition. While 13,811 new names were printed in the Fifteenth Edition of the Directory, 8,008 physicians whose names appeared in the Fourteenth Edition died in the interim, and approximately 200 names which appeared in the Fourteenth Edition did not appear in the Fifteenth Edition for various reasons, including revocation of licenses and withdrawals from practice for other reasons.

The publication costs of the Fifteenth Edition of the American Medical Directory amounted to $165,794.47. The sales of the Directory up to the time of the preparation of this report have failed to equal production costs by the sum of $8,488.90. It is reasonable to expect that this deficit will be reduced to some extent by additional sales.

Summary

The Fifteenth Edition of the American Medical Directory contains the names of 188,916 physicians of the United States and Canada. More than 13,000 new names appeared in this edition, while approximately 8,000 names which appeared in the Fourteenth Edition were dropped

because of deaths and for other valid reasons. The cost of compiling and publishing the information presented in the Fifteenth Edition of the Directory was $165,794.47. The income received from sales up to the time of preparation of this report was less than the cost of publication by the sum of $8,488.90.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau is operated for the benefit of official publications of constituent state medical associations, and thirty-three of these publications are represented in the Bureau. Advertising contracts secured through this Bureau for state journals in 1938 amounted to $166,704.57, which represents an increase of about $10,000 over the year 1937. Commissions earned by the Bureau amounted to $33,392.45, of which amount the sum of $17,500 was rebated to the state journals after the costs of maintaining the Bureau were subtracted from the total amount of commissions earned.

Thirty-three state medical journals were members of the Cooperative Medical Advertising Bureau in 1938. In January 1939 the *New York State Journal of Medicine* was added to the list of publications served by this Bureau.

Summary

The earnings of the Cooperative Medical Advertising Bureau in 1938 were $33,392.45, of which amount the sum of $17,500 was distributed among the state journals after the operating costs of the Bureau had been deducted. The total amount of the value of advertising contracts secured through the Bureau for the state medical journals was $166,704.57.

The New York State Journal of Medicine was added on Jan. 1, 1939, to the list of journals participating in the Bureau.

Mailing and Order Department

A total of 69,736 orders were handled by the Order Department during the year covered by this report. The total units distributed were 398,564. The use of more than 5,000 mail bags with a total weight of 156 tons was required to carry the material distributed through orders received.

The total number of pieces of first and third class mail sent out by the Mailing Department was 1,699,477. Nearly three and one-half million envelops were required for all mailing purposes.

American Medical Association News

During 1938-1939 a department to aid in press relations was established in the headquarters office, in charge of a professional newspaper writer, Mr. Lawrence C. Salter. From this department each week there is issued the AMERICAN MEDICAL ASSOCIATION NEWS, containing excerpts or rewrites of material published in the various publications of the American Medical Association and also special announcements concerning the activities of the organization. This bulletin is sent regularly to all press associations, to news sources, to periodicals and to the editors of medical journals and of bulletins of county medical societies.

Conference with Representatives of Hospital Associations

On invitation of the Board of Trustees of the American Medical Association, members of the board of trustees of the American Hospital Association and representatives of the Catholic Hospital Association and the American Protestant Hospital Association met in conference at the offices of the American Medical Association on Feb. 15, 1939. Various matters of mutual interest to the groups represented were frankly discussed, and it was most gratifying to note that there was decided unanimity of opinion with respect to many phases of the general subject of medical care in hospitals, even though there may be some differences between the basic policies of one or more hospital associations and those of the American Medical Association.

Among questions that received consideration at this conference were those having to do with group hospitalization and an apparent tendency on the part of some of the hospital groups to include both special and general medical service in contracts offered to their members as well as other questions of major importance and present interest. During the conference the following resolution was unanimously adopted by the representatives of the three hospital associations:

> The representatives of the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association here present desire to express to the Board of Trustees of the American Medical Association their confidence in the leadership of the medical profession in furthering the excellence of medical service and in aiding the solution of problems of the distribution and provision of medical care.

At a later time the following resolution was approved by all those who participated in the conference:

> It is moved that the following be the sense of this meeting:
> This gathering of the Trustees of the American Medical Association with representatives of the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association express their gratification on the unanimity of opinion developed concerning many phases of the health problems of the nation achieved by mutual discussion. It is recommended to the American Medical Association, the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association that such joint meetings of their representatives be held for the consideration of problems of mutual concern.

It is the considered opinion of the members of the Board of Trustees that this conference with the representatives of the hospital associations served a most useful purpose in that it provided opportunity for open discussion of important problems and established an understanding which possibly could not have been brought about otherwise.

It was not possible that all matters of mutual interest to those who participated in the conference could be fully considered, nor did it seem wise to undertake at the time to examine minutely the reasons for some possible differences in the policies of all the organizations represented in the conference. There seemed to be unanimous agreement that the physician is supreme in the hospital in all matters pertaining to medical service rendered in hospitals.

As indicated by the terms of the resolution which received the unanimous approval of all present, it is hoped that similar conferences may be held from time to time in the future with the official approval of the American Hospital Association, the Catholic Hospital Association, the American Protestant Hospital Association and the American Medical Association.

The Board of Trustees offers the recommendation to the House of Delegates that such approval be indicated at this session.

Official Contact with Other National Organizations

Various important medical organizations of national scope not officially affiliated with the American Medical Association have within recent years concerned themselves with the consideration of many matters which they had not previously officially considered. It seems to be highly desirable that, so far as possible, concerted effort on the part of all groups interested in the promotion of the art and science of medicine, in the extension of medical service for the benefit of all classes, in improving the methods for applying scientific medical knowledge and in the maintenance of worthy professional ideals should be fully established at the earliest possible time.

For that reason the Board of Trustees has decided to invite the proper official representatives of certain medical organizations of national scope to participate in conferences similar to that recently attended by the members of official bodies of the three national hospital associations. The first invitation was recently extended to the Board of Regents of the American College of Physicians.

Communications from National Medical Association, Inc.

Official representatives of the National Medical Association, Inc., which is the national organization of Negro physicians in the United States, appeared before the Board of Trustees and later before the House of Delegates of the Association at the special session of the House held in Chicago in September 1938.

The National Medical Association, Inc., includes in its membership Negro physicians, dentists and pharmacists. According to the statement of its president, Dr. George W. Bowles, the association has approximately 4,000 members, this number having been determined from the records of the organization in the hands of its secretary. From the same source an estimate is offered to the effect that there are approximately 5,300 Negro physicians in the United States.

The representatives of the National Medical Association addressed the House of Delegates at the special session in September and expressed a desire on the part of the officers of that association to cooperate to the fullest possible extent in maintaining the policies of the American Medical Association as established by its House of Delegates. They asked for such aid as might be extended to them by the American Medical Association in securing recognition of Negro physicians, members of the National Medical Association, by certain agencies of the federal government and of state governments. They also expressed the desire to have the designation "col.," which appears with the names of Negro physicians listed in the American Medical Directory, removed.

The Board of Trustees has given careful and sympathetic consideration to the communications received from the elected officers and other representatives of the National Medical Association, Inc., and will undertake to work out some method for listing Negro physicians in the American Medical Directory in a manner that will not be objectionable to them.

The Board of Trustees desires to submit to the House of Delegates the communications referred to with the recommendation that they be referred to a reference committee for consideration of the points involved.

The president of the National Medical Association, Inc., has been informed that this action would be taken by the Board of Trustees and that the Board believes that the reference committee of the House of Delegates to which these matters may be referred will be glad to have official representatives of the National Medical Association appear before it.

Division of Drugs, Foods and Physical Therapy

The creation of the Division of Drugs, Foods and Physical Therapy has proved to be an effective means of coordinating the work of the Council on Pharmacy and Chemistry, the Council on Foods, the Council on Physical Therapy and the Chemical Laboratory. This Division has also been concerned with the activities of the Advisory Committee on Advertising of Cosmetics and Soaps, the Councils' Committee on Contraceptives and the Committee on Medical Patents.

Council on Pharmacy and Chemistry

The year 1938 will be memorable because of the passage by the Congress of (*a*) the Wheeler-Lea Bill regulating the advertisements of foods, drugs and cosmetic preparations outside the package, including advertising over the radio, through newspapers and even by the spoken word; (*b*) the Food, Drug and Cosmetic Act, which places in the hands of the Department of Agriculture much more effective weapons to control the supervision of labeling and advertising accompanying the packages of products sold to the public, and also requires disclosure of the contents of preparations; (*c*) the licensing drug bill providing that no new drug preparation may be placed in interstate commerce after June 25, 1938, until it has received a license from the Food and Drug Administration, which is charged with the duty of determining whether or not the product may be harmful under the conditions recommended. These laws are designed to carry out, to a certain extent, policies similar to those long since established by the Council on Pharmacy and Chemistry and by the Bureau of Investigation. While they do not yet contain some of the provisions which seem to be in order, such as quantitative disclosure of formula, these statutes do clearly recognize the validity of principles maintained by various departments of the American Medical Association unceasingly since 1905, the year in which the Council on Pharmacy and Chemistry was created.

The Food, Drug and Cosmetic Act represents an endeavor to minimize counter prescribing. Physicians should therefore welcome this opportunity to encourage the proper prescribing of drugs and do all in their power to cooperate with pharmacists against the counter exploitation of drugs used in the scientific practice of medicine. The work of the Council on Pharmacy and Chemistry will be aided in certain directions by force of these new laws, but it will not be lessened. Council recognition of products is coming to mean more and more to physicians and to manufacturers, as is shown by the fact that the work of the Council increases each year. When a drug passes scrutiny of the Council it has shown promise of merit and, if it is accepted, the manufacturer must agree to market it according to claims the Council believes to be justified. The products of certain manufacturers are not recognized by the Council. Few agencies are in position to exercise such discrimination as is shown by the Council in the acceptance of pharmaceutic products. The law now recognizes and provides for the pronouncements of expert medical opinion and it is expected that the opinions of the Council on Pharmacy and Chemistry will have decided influence in helping to formulate decisions on the current use of therapeutic agents. A number of concerns whose products are not recognized by the Council have recently made active progress in revising their catalogues to avoid unfavorable official rulings. It is quite likely that some of these producers will be able to show sufficient revision to warrant the Council's considering certain of their drugs for inclusion in New and Nonofficial Remedies.

On Sept. 1, 1938, announcement was made of the acceptance of products of the Upjohn Company and that company is now cooperating well with the Council. The Council now has catalogues of approximately a dozen manufacturers before it with a view to determining the status of the products of these concerns.

The Council wishes to take this opportunity to express to the members of the American Medical Association its appreciation of the increasing support and recognition which is being given to its work.

INCREASE IN MEMBERSHIP OF THE COUNCIL

Because of the widening field in drug therapeusis it has been necessary to increase the membership of the Council by two members.

PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies.—A usual edition of this publication was issued in 1938. Two supplements were issued as usual, one on August 1 and one on November 1. It is to be emphasized that New and Nonofficial Remedies is a current publication, issued annually, the contents of which are being constantly changed to keep in step with the rapid advancement of therapy. The number of copies sold in 1938 was 5,242. In addition 6,300 paperbound copies were distributed to one class of each class A medical school.

The Epitome of the U. S. Pharmacopeia and National Formulary.—It was not necessary to revise this book, since few changes were made in the Interim Supplement issued by the Revision Committee of the U. S. Pharmacopeia or by the Revision Committee of the National Furmulary. The demand for the Epitome was very good, the number of copies sold in 1938 having been 7,809.

Useful Drugs.—Useful Drugs has found increasingly wide acceptance among the profession and particularly in the medical schools. In 1938 a new edition was issued. Of late it has been necessary to revise the book approximately every two years. The motto for this book might well be a modification of the old aphorism "It is better to know a few drugs well than many drugs poorly." The number of copies of Useful Drugs sold in 1938 was 7,397.

Glandular Physiology and Therapy.—This book was issued at the close of 1935, after which there was one reprinting. The book is in need of revision and it is anticipated that the new edition will be published during 1940. The number of copies of Glandular Physiology and Therapy sold in 1938 was 710.

A. M. A. Interns' Manual.—This represents a radical revision of a publication previously known as Hospital Practice for Interns. It was issued for the first time in the late spring of

1938. The reception given to the book was greater than was anticipated. In it are contained the official statements from the Council on Medical Education and Hospitals on the relationship of the intern to the hospital, a brief discussion of physical therapy prepared by the Council on Physical Therapy, and a statement on foods and nutrition prepared by the Council on Foods. In addition, there is considerable material on various types of drugs—dosages and indications—which come within the purview of the Council on Pharmacy and Chemistry. This represents truly a cooperative effort of the various councils of the Association in a common field. The number of copies sold in approximately a half year was 1,943.

REPORTS OF THE COUNCIL

The Council issued the usual number of reports. Undoubtedly more interest has been shown in sulfanilamide than in any other drug introduced in medicine during the last few years, and the Council has again revised its description. During the year the Council coined a nonproprietary name for a derivative of sulfanilamide which had been introduced in the United States under undesirable proprietary names. Sulfapyridine, the name coined by the Council, has received wide acceptance. A number of articles which represent extensive work were published by the Council, such as those on the Present Status of Ergonovine, the "new" alkaloid from ergot; Creosote and Guaiacol Compounds, all of which were omitted from New and Nonofficial Remedies; the Present Status of Immune Globulin (Human); the Present Status of Picrotoxin in Poisoning by the Barbiturates, and a number of reports on other substances. Space does not permit detailed statement of the many products and substances which have been passed on by the Council.

COOPERATIVE COMMITTEE ON VITAMINS

The Council on Pharmacy and Chemistry and the Council on Foods have a joint committee on vitamins. Because of the importance of the vitamin problems which were before the councils during 1938 a special meeting of this committee, together with the members of the two councils who are not members of the committee, was called early in December. In order to aid in appreciation of the scope of the discussions, mention is made of the following among the topics presented for action: permissible claims for vitamin A, riboflavin, thiamin chloride, nicotinic acid, cevitamic (ascorbic) acid, vitamin D, vitamins A and D together, viosterol preparations, and vitamin E. The Cooperative Committee of the Councils endorsed the action of the American Society of Biological Chemists and the American Society of Nutrition that the term "vitamin F" be not recognized. It also considered the possibility of reducing the number of types of vitamin A and D preparations by prescribing limits of potency and dosages for different classes of vitamin products. The new problems of nomenclature in relation to vitamins were thoroughly discussed, as were international standards. Other topics dealt with the work of the Council on Foods, such as fortification of various foods with vitamins, and statement of general policy toward such preparations.

Based on these discussions there is to be published in 1939 a review of the action of this committee. Scientifically the conception of vitamins is becoming much clearer and each year brings contributions to the knowledge of the subject. On the other hand, the vitamins have been played up in a grossly unscientific manner to the public. Particularly to be disparaged are the many unnecessary polypharmaceutic preparations containing vitamins, sometimes combined with minerals, which are constantly urged on the public. There is but little need for vitamins as contained in such products and certainly no need medically of complex unscientific mixtures sold under "catchy" names, with misleading claims indicating usefulness in the treatment of various diseases and as cosmetics.

The Council on Pharmacy and Chemistry, in cooperation with the Council on Foods, expects to issue in 1939 a book on vitamins containing the articles published under the joint auspices of these councils. These articles have been thoroughly revised and are being edited by the Secretary of the Council on Foods.

During the year, nicotinic acid was standardized and a number of brands were submitted to the Council on Pharmacy and Chemistry. The Council also has under consideration the newer addition to the vitamins now called vitamin K. It is encouraging to note that scientific terms are gradually replacing the use of such unsatisfactory designations as are indicated by alphabetic designations. Practically all the known pure crystalline substances are now included in New and Nonofficial Remedies under chemical names.

PROBLEMS OF NOMENCLATURE

The foregoing discussion indicates in a small measure the various problems before the Council. Appreciation of the work of any group having so many questions before it requires a large background of experience. It is therefore sometimes difficult to understand adequately why the Council has been compelled to take this or that action. Practically, most of the complaints that are received in the Council office deal with matters of nomenclature. It is difficult for some persons to see the necessity of not establishing precedents by the use of names which are therapeutically suggestive and that, should therapeutically suggestive names be once recognized, the chaotic condition of nomenclature which was prevalent in 1905 would again be in the course of establishment. The Council is also insistent that there shall be only one proprietary name to any substance and such a proprietary name is granted either because of discovery of a novel preparation or discovery of novel medicinal properties, either of which constitutes a definition for distinct originality.

MEMBERSHIP OF THE COUNCIL

The Council lost by resignation one of its valued members, Dr. E. M. Bailey, who was forced to retire because of illness. Dr. Bailey had been a member of the Council on Pharmacy and Chemistry and of the Council on Foods since 1930. He was chairman of the Committee on Rules and Procedure of the Council on Pharmacy and Chemistry and served admirably as chairman of the Cooperative Committee on Policy, Rules and Procedure, representing the three councils. The members of the Council have recorded their appreciation of the excellent services which Dr. Bailey gave to the medical profession during these years though he himself was not a member of that professon. It is one of the glories of science in general that men of distinction who are not physicians are willing to serve the medical profession unselfishly in its endeavor to promote the best interests of the public and of medicine.

Summary

Important legislation enacted by Congress during the year 1938 included a bill regulating the advertising of foods, drugs and cosmetic preparations outside the package, over the radio and through newspapers, the food, drug and cosmetic act providing for more effective control over the supervision of labeling and advertising accompanying packaged products and requiring the disclosure of the contents of the preparations, and an act providing that no new drug preparation could be placed in interstate commerce after June 25, 1938, until it had received a license from the Food and Drug Administration. These laws are designed to carry out to a certain extent policies similar to those of the Council on Pharmacy and Chemistry and will in some respects offer support to the work of this Council. The law now recognizes and provides for pronouncements of expert medical opinion, and it is possible that the official opinions of the Council on Pharmacy and Chemistry may have some important influence in aiding in the formulation of decisions on the use of therapeutic agents.

Some manufacturers whose products are not recognized by the Council have made revisions in their catalogues for the purpose of bringing them into compliance with newly enacted legislation, and some of these manufacturers may be able to show sufficient revision to warrant consideration by the Council of some of their products for inclusion in New and Nonofficial Remedies.

Increase in the volume of work necessarily undertaken by the Council required the addition of two members.

Publications of the Council have enjoyed fairly satisfactory distribution, and it has become necessary to issue new editions of some of them and to prepare for early revision of others. The issuance of reports

designed to provide the medical profession with information concerning the status of new drugs has been continued.

The Cooperative Committee on Vitamins, a joint committee representing the Council on Pharmacy and Chemistry and the Council on Foods, has been created for the purpose of conducting intensive studies pertaining to vitamins. Under the auspices of this committee, important articles pertaining to vitamins have been prepared and, after publication in The Journal, will be brought together for publication in book form.

Council on Foods

It is one of the functions of the Council on Foods to evaluate evidence regarding the nutritional significance of foods and, by means of its seal, to designate as acceptable the claims contained in the advertising of wholesome food products. In this work the Council has continued to receive the cooperation of many producers. Although there has been a limitation in the classes of foods which are accepted, during 1938 approximately 400 products were given consideration. For most of these it was necessary to recommend changes in labeling or advertising or both. Only six products were rejected during the year because firms were unwilling to meet requirements. Thus, it would seem that the work of the Council is bearing fruit, although it would be difficult to obtain an accurate measure of it.

Despite restrictions in the scope of the Council's activities, the labors of its members have greatly increased. The evaluation of scientific evidence and the examination of advertising demand considerable time. During a single month the Council receives approximately 4,000 typewritten pages of radio "continuity" alone. No proper estimate can be made of the amount of advertising for newspapers and periodicals and longer statements such as are contained in booklets and pamphlets that has been given careful consideration. Perhaps the increased powers of governmental agencies provided by the new Food, Drug and Cosmetic Act and the Wheeler-Lea Bill may in time relieve the Council of much of this work and thus permit more time to be spent on the evaluation of scientific and medical data on the value of foods in preserving health.

PUBLICATIONS OF THE COUNCIL

During the year there was prepared for the A. M. A. Interns' Manual a section on Diet and Nutrition. There also was published a pamphlet containing a brief account of some of the principles which underlie the selection of foods for an adequate diet. This pamphlet, entitled "The 'Normal' Diet," was distributed in connection with the exhibit of the Council at the San Francisco meeting. Copies were made available for distribution in reply to the great number of inquiries received by the Council office for information about foods and diet from physicians, students and the general public.

When canned orange juice and other canned fruit juices are substituted for the fresh orange juice which commonly is used in the feeding of infants, there is interest in the vitamin C content of the products. Vitamin C is readily destroyed by oxidation, particularly on heating. Modern canning procedures are designed so as to conserve the vitamin. In order to obtain further information on this point, Dr. E. M. Bailey of the Connecticut Agricultural Experiment Station, New Haven, has supplied for the Council comparative data on the vitamin C content of accepted fruit juices (orange, lemon, grapefruit, pineapple and tomato) determined by the chemical titration method. The Council, in its report, concluded that all of the products examined may be considered excellent sources of vitamin C.

In collaboration with the Council on Pharmacy and Chemistry, arrangements were made for the preparation of a series of articles on the vitamins. These were published during 1938 in THE JOURNAL. There were thirty-one articles altogether, which reviewed the chemistry, physiology and dietetic and therapeutic values of each of the vitamins. Judging by inquiries, these authoritative reviews, prepared by leading investigators in the field, have proved to be most useful. Arrangements now have been made for publication of the series in book form.

Progress also has been made in the compilation of material for the book "Accepted Foods."

RULES AND DECISIONS

As information has accumulated regarding foods and their nutritional value, it has been necessary for the Council to revise the requirements for accepted products. Some of the items which have been given careful study are indicated by the changes made in the Rules and Decisions.

The Council has always believed that the ingredients of processed foods should be made known, and particularly of the products intended for special dietetic uses and for feeding infants. Prominent declaration should be made of the ingredients and of the amounts of the essential dietary substances on labels. In accordance with these fundamental policies, the Rules Governing Package Labels and Advertising of special purpose foods have been revised by the incorporation of the following statements:

> The labels and advertising shall contain a statement listing all dietary ingredients of nutritional significance in the order of decreasing predominance by weight and shall indicate the special purpose for which the product is intended. These statements, so far as is practical, should be in close proximity to the trade name. In addition, as much of the following information should be given as is significant to permit the intelligent use of the particular product by the consumer: specific properties, vitamin and mineral content, the calories per gram or ounce, and the grams each of carbohydrate, protein and fat per portion.

Claims for the vitamin content of food products intended for therapeutic purposes should be supported by suitable evidence. As a guide to producers and as an expression of Council policy, the following statement concerning the kind of evidence desired together with a general suggestion about how this evidence may be obtained has been incorporated under the Rules Governing Package Labels and Advertising:

> In the case of special purpose foods designed to supplement the vitamin content of therapeutic and other diets, satisfactory evidence must be presented that storage under ordinary conditions does not lower the vitamin potency of the product below the assay values claimed. Suitable evidence on this point, for products which ordinarily are kept at room temperature, would be obtained by assay of specimens maintained for three months at a temperature of 100 degrees Fahrenheit. For products which ordinarily are kept in the refrigerator, suitable evidence would be obtained by assay of specimens which have been maintained for suitable periods of time at refrigerator temperature.

The section of the Rules headed "Vitamins" under "Form of Submission of Foods for Consideration" likewise has been amended to read:

> Specific vitamin claims must be based on satisfactory evidence, preferably by direct biologic tests of marked samples by a competent investigator. Report of assays should be complete enough to enable appraisal of the work and the deductions therefrom. In the case of vitamin C, chemical titration may be sufficient evidence of the ascorbic acid potency of products for which it has been demonstrated that the chemical method is sufficiently precise. It is important that assay of the vitamin potency of food products be performed on samples which have been kept under conditions of storage comparable to those to which the food product is likely to be subjected.

It was formerly customary to add a small amount of bread crumbs or other cereal food to strained vegetables prepared for use in infant feeding in order to thicken them slightly and to increase their caloric value. The use of cereal in the preparation of strained vegetables for infant feeding has now been largely abandoned, but vegetable soups prepared for infants and young children frequently contain cereal or potato as thickening agents and for the added food value which they supply. Commercially prepared strained vegetable soups with few exceptions contain cereal ingredients in amounts ranging from 1.7 to 12 per cent by weight. The cereals used are chiefly barley, rice and wheat germ. One cereal product only or a mixture of any two or all three of the cereals named may be employed. The nutritional value of the added cereal for healthy babies is recognized.

Because of the small amount of cereal which may be used and the fineness of division of strained foods, the presence of cereal may not be immediately apparent on inspection of the product. The Council believes that the container label of foods should conspicuously present such information as will inform the public of the ingredients of the food within the package. In the case of strained vegetable soups the Council further believes that prominent declaration of the presence of cereal in the product may be of importance to physicians pre-

scribing these foods and the following decision on this point has been adopted:

Added cereal in sieved vegetable soups intended for infant feeding or for special diets shall be given appropriate and prominent declaration on the main panel face of the package label.

The following decision concerning the use of the word "cream" on the labels and in advertising of evaporated milk is self explanatory:

There have appeared on labels and in advertising for various brands of evaporated milk certain statements which the Council believes are undesirable, such as "use evaporated milk instead of cream," "for all your cream needs" and "use as cream." Although evaporated milk is often useful as a culinary aid in situations in which cream is commonly used, the composition of evaporated milk differs from that of cream; statements that imply that evaporated milk is practically the same as cream are nutritionally incorrect and misleading. The claim that evaporated milk has the "consistency of cream" may be correct from a physical point of view; however, the Council regards the expression as objectionable because of the suggestion of similar nutritive properties. The use of evaporated milk in tea, coffee and for other purposes can be suggested without recourse to the word "cream."

GENERAL POLICIES

The funds supporting the work of the Council on Foods come entirely from the American Medical Association. There is no charge of any kind for the seal of acceptance and there never has been.

In order to conserve its facilities, the Council has found it necessary to omit certain foods from its scope. Among the exempted products are well known perishable foods such as fresh fruits and vegetables, fresh meat and eggs and ordinary pasteurized milk. As long ago as 1936 it was found necessary to include individual brands of butter in the exempted list. During 1938 it was brought to the attention of the Council that exemption of butter with continued consideration of oleomargine created a difficulty because of the belief of many that the seal of acceptance constitutes a recommendation. The Council has stated repeatedly that the seal means only that in its opinion the product on which it appears is a wholesome food and that the labeling and advertising comply with Council requirements. It also may be emphasized that the Council gives consideration to so-called educational advertising of trade associations or firms for classes of foods and, on material which is acceptable, permits the display of the seal, usually with an added statement to the effect that the seal denotes that the nutritional claims are acceptable to the Council. With regard to butter, however, the disadvantages of not being able to obtain the seal were felt so keenly by members of the dairy industry that the House of Delegates requested the Council to reestablish suitable standards for the acceptance of butter and the advertising associated therewith. The Council has been spending considerable time in an endeavor to take care of the added work that would be involved and it is expected that some general method of procedure shortly will be devised.

MEMBERSHIP AND CONSULTANTS

During the year the term of membership of Dr. Lydia J. Roberts expired and she was reelected by the Board of Trustees to serve another period of five years. Dr. George R. Cowgill was elected to serve the unexpired term of Dr. Edwin O. Jordan (deceased), and Dr. Irvine McQuarrie was elected to take the place of Dr. Grover Powers, who resigned because of the pressure of other duties. The staff of the Council office remains the same except for the appointment of Dr. Harriet Morgan Fyler to replace Dr. Marjorie Pickens, who resigned to become research associate in the Department of Home Economics, University of Illinois.

The services of the following persons, who were called on as consultants during the year, are gratefully acknowledged: Dr. Walter C. Alvarez, Dr. Hugh R. Butt, Dr. A. J. Carlson, Dr. Henry C. Eckstein, Dr. George B. Eusterman, Miss Mary A. Foley, Dr. Ramon F. Hanzal, Dr. A. C. Ivy, Dr. William E. Krauss, Dr. Grace MacLeod, Dr. E. M. Nelson, Dr. Grover F. Powers, Dr. Henry C. Sherman, Dr. Albert M. Snell and Dr. Genevieve Stearns.

Summary

A review of activities of the Council during 1938 emphasizes again the continued cooperation of members of the food industry. Few products have been accepted without requiring changes in nutritional claims on labels or in advertising and very few products have been rejected because producers were unwilling or unable to meet the requirements. The newer legislation on foods may enable the Council to concentrate more on the evaluation of scientific and medical opinion on the value of foods in preserving health. Reports of this nature have been published. In a study of the comparative value of the vitamin C potency of canned fruit juices it was found that accepted products compare favorably with fresh juices and rate as excellent sources of the antiscorbutic factor. The Council has prepared brief accounts of the principles which underlie the selection of an adequate diet, one such report having been published in the A. M. A. Interns' Manual. In cooperation with the Council on Pharmacy and Chemistry there was published in The Journal a series of noteworthy articles on the vitamins prepared by prominent investigators in the field. These articles now are being collected for publication in book form. There are recorded several revisions in the Rules and Decisions of the Council which were made with the view of having the requirements for accepted products more definite in the light of newer knowledge. The request of the House of Delegates for the reestablishment of suitable standards for the acceptance of butter, and the advertising associated therewith, has resulted in a concentrated effort on the part of the Council to devise some general method of procedure whereby meritorious foods which now are exempted from consideration, because of limitations in facilities, may be given proper recognition.

Council on Physical Therapy

Among important activities of the Council on Physical Therapy within the last year were those concerned with the consideration of radium and radon seeds, roentgen ray apparatus, artificial limbs, hearing aids and the formulation of standards for audiometers, advice in problems of research, a study of radio interference caused by electromedical equipment, revision of the Handbook of Physical Therapy and the booklet "Apparatus Accepted," and the investigation of apparatus. The gathering and dissemination of information that will aid the medical profession in determining the therapeutic value of certain devices and methods employed in the administration of physical therapy constitutes one of the purposes for which this Council was created. Through official reports and scientific articles published in THE JOURNAL, conferences with interested groups and a voluminous correspondence, the Council is attempting to accomplish this purpose.

RADIUM AND RADON

After a thorough study of the question of leakage and filtration of radon seeds, the Council is now in a position to go forward with the consideration of these products, using as a guide the report "Radon Seeds," to be published in THE JOURNAL. The preliminary work consisted of testing seeds purchased on the open market in a prominent laboratory manned by qualified physicists aided by qualified physicians.

In view of the action taken by the House of Delegates at the San Francisco session of the American Medical Association in June 1938 disapproving the rental of radium under certain conditions, the Council is now in a position to proceed with the consideration of the radium products which have come to its attention.

ROENTGEN RAY APPARATUS

The Council is continuing investigations of roentgen ray apparatus with a view to accepting for inclusion in its official lists such apparatus as meets requirements of the Council for that purpose. While it is easily possible to secure satisfactory tests of the smaller equipment of this nature, it is much more difficult to secure the necessary facilities for testing the largest and most powerful roentgen ray machines.

ARTIFICIAL LIMBS

At the suggestion of manufacturers of artificial limbs, a joint meeting of representatives of the Council on Physical Therapy

and of the Association of Limb Manufacturers of America was held in Chicago, at which time the question of sites for amputation, fitting of artificial limbs, standards for acceptance and sales methods were discussed. Articles are now in preparation dealing with these subjects and they will be published in THE JOURNAL.

AUDIOMETERS AND HEARING AIDS

A meeting was held in Chicago at which representatives of the hearing aid industry and consultants for the Council were present. As a result of action taken at this meeting, the "Minimum Requirements for Acceptable Audiometers" were revised and published. Problems discussed at this meeting were (1) the establishment of the energy value for the threshold of hearing, (2) the practicability of fitting hearing aids by means of audiometers and (3) requirements for acceptance of hearing aids. A better understanding of the mutual problems of the otologist and the manufacturers of audiometers and hearing aids was reached.

INTERFERENCE WITH RADIO COMMUNICATION

By mutual agreement the Federal Communications Commission and the Council on Physical Therapy held a joint informal meeting in the Harkness Theatre, Columbia University, New York, in January 1939, at which the problem of interference with radio communication caused by electromedical equipment was given consideration. Attending the meeting were members of the medical profession, representatives of manufacturers of electromedical equipment and of radio manufacturers, officials of the Federal Communications Commission, and other interested groups. At this meeting specialists and engineers in the radio communication field demonstrated interference by short wave diathermy with aural reception and television. The important accomplishment of the meeting was better appreciation of the mutual problems confronting the medical profession and the communication interests. Two solutions were proposed: (1) screening of the treatment room and (2) the allocation of certain radio bands or channels. No definite action was taken, however, since it was believed that further consideration of this problem was necessary.

HANDBOOK OF PHYSICAL THERAPY

The third edition of the Handbook of Physical Therapy has been revised and brought up to date. New articles prepared and included in the volume are on the following subjects: fever therapy, medical diathermy, neutron rays, ultraviolet and infrared radiation, electrolysis, physical therapy in fractures and infantile paralysis, psychoses and neurologic conditions and equipment for physical therapy departments in hospitals. Revisions have also been made in most of the articles retained from the second edition.

INVESTIGATION OF APPARATUS

As usual, much of the Council's time has been concerned with the consideration of apparatus. Of the 100 pieces of apparatus considered, forty were accepted, eleven were rejected, and the remainder were withdrawn from the market or recommendation made that the units be improved and resubmitted to the Council for consideration. A new edition of the booklet "Apparatus Accepted" was published in September, 1938, bringing up to date the information on apparatus that has been reported on by the Council.

GRANTS-IN-AID OF RESEARCH

Several applications were presented to the Council requesting aid in research. Only one application was approved. The Council believes there are many problems in the field of physical therapy deserving careful investigation and will carefully review all requests for grants in aid of research.

EDUCATION

In its educational program, designed to promote sound physical therapy, the Council has had the able assistance of a group of consultants whose efforts have been untiring in this field. Approximately seventy lectures were given and instruction in physical therapy was instituted in three medical schools. Twenty-six articles and three books were published by this group. The members attended fifteen meetings of physical therapy groups. Efforts to establish an American Board of Physical Therapy culminated in the appointment of a committee to establish such a board which will serve physicians limiting their practice to physical therapy. New departments of physical therapy were established in several hospitals as a result of the Council's efforts.

Five exhibits were shown at various medical meetings, and four new films were prepared on the following subjects: "Aids in Muscle Training," "Underwater Therapy," "Occupational Therapy" and "Massage."

The Council has cooperated with the Council on Medical Education and Hospitals, the American Physiotherapy Association and the American Registry for Physical Therapy Technicians in connection with the consideration of problems concerning educational standards for technicians. It also cooperated with the Section on Ophthalmology of the American Medical Association in the consideration of ophthalmologic devices.

Summary

Briefly, the important work of the Council on Physical Therapy for 1938 has been directed toward the consideration of radium and radon seeds, artificial limbs, audiometers, hearing aids, roentgen ray apparatus, the study of radio interference caused by electromedical equipment, the revision of the Handbook of Physical Therapy and of the booklet "Apparatus Accepted," and the examination of other therapeutic apparatus.

Consultants on audiometers and hearing aids, on artificial limbs, on roentgen ray apparatus and on radium and radon products have cooperated with the Council in connection with the formulation of standards, the preparation of articles and the consideration of apparatus in the respective fields.

The interference with radio communications by electromedical equipment was one of the important subjects coming before the Council. A joint meeting was held at which members of the medical profession, representatives of the manufacturers of electromedical equipment, of radio manufacturers and of other interested bodies, and officials of the Federal Communications Commission were present. Ways and means of solving the problems were considered but no definite action was taken.

The Council on Physical Therapy has revised the Handbook of Physical Therapy and brought it up to date. The booklet "Apparatus Accepted" has been revised and reprinted.

The Council has continued its investigation of and reporting on apparatus submitted and in some instances has investigated and reported on products not submitted.

The Chemical Laboratory

The A. M. A. Chemical Laboratory continued in its important work of cooperating with the Council on Pharmacy and Chemistry in the examination and elaboration of standards for a large number of new preparations or new forms of old preparations offered to the medical profession. It exercised careful scrutiny over all the brands of sulfanilamide submitted to the Council and has examined the products of twenty-two manufacturers. The sulfanilamide now on the market has been found to coincide closely with the standards which were elaborated by the A. M. A. Laboratory in 1937. A good portion of one chemist's time has been devoted to the problems pertaining to crystalline zinc insulin and amorphous insulin, both in the solid form and in solutions in ampules. Nicotinic acid, cevitamic (ascorbic) acid, thiamin chloride, riboflavin and carotene are examples of pure vitamins in crystalline form which have received close attention by the Laboratory. Other compounds of interest are mercurials combined with theophylline, certain estrogenic substances and a number of products containing vasoconstrictors, including ephedrine, propadrine, racephedrine, neosynephrin and their salts. The Laboratory has found it necessary to continue examination of the various dextrose solutions on the market. A number of revised tests and standards were prepared dealing with products included in New and Nonofficial Remedies. New barbiturate derivatives and new anes-

thetics have been carefully examined chemically; also a number of contrast substances for the purpose of aiding x-ray diagnosis. Bismuth preparations still demand a great deal of attention.

The Laboratory has examined a number of products for the Bureau of Investigation, which have either been reported in THE JOURNAL or are about to be reported.

Members of the Laboratory staff have appeared before a number of scientific societies and have contributed to their programs. Members of the staff have also cooperated with other departments of the Association in the preparation or criticism of material involving chemical considerations.

Councils' Committee on Contraceptives

The Councils' Committee on Contraceptives was organized by the Council on Pharmacy and Chemistry and the Council on Physical Therapy of the American Medical Association at the request of the House of Delegates. The membership of the Committee is as follows: Dr. Paul C. Cannon, Dr. Carl Henry Davis, Dr. A. U. Desjardins, Dr. E. M. K. Geiling, Dr. E. E. Irons, Dr. John H. Musser and Dr. H. B. Williams. Ex-officio members of the Committee include Dr. Sollmann, chairman of the Council on Pharmacy and Chemistry, Dr. Mock, chairman of the Council on Physical Therapy, Dr. Fishbein, Mr. Carter and Dr. Leech.

The Committee on Contraceptives has decided on a general policy of conservative action and will serve largely as a fact-finding body rather than as an advisory body. Recently a report was issued on the use of roentgen rays for contraceptive purposes. An article by Dr. Irving Stein entitled "Contraceptive Methods" has been approved for publication by the Committee. This is a comprehensive review of contraceptive devices which may be harmful. Others have been asked to prepare articles dealing with contraceptive practices.

Advisory Committee on Advertising of Cosmetics and Soaps

The Advisory Committee on Advertising of Cosmetics and Soaps has continued to pass on preparations on which its advice has been requested. There is no doubt that a decided change has been noted in the advertising of many of the cosmetic firms, owing in large measure to the advent of the new Food, Drug and Cosmetic Act but in small measure also to the activities of this Committee. The Committee has been called on for advice from many sources. Although the Committee has not published any articles over its name, it is pleased to report that many of the firms with which it has dealt have revised their literature completely and effectively. In the case of other firms the Committee has been obliged to inform them that their products are not acceptable for advertising in the pages of THE JOURNAL. In 1938 the membership of the Committee was increased by two and now consists of Dr. Harry E. Alderson, Dr. Joseph J. Eller, Dr. C. Guy Lane, Dr. Francis E. Senear and Dr. Bedford Shelmire, with the Editor of THE JOURNAL and the Director of the Division of Drugs, Foods and Physical Therapy.

Council on Industrial Health

GENERAL ACTIVITIES

During its first year of organized activity, the Council on Industrial Health has been obliged to devote a major share of its attention to problems of organization and to definitions of the scope of work which it should undertake. In both directions it has had assistance and encouragement from the other established agencies at headquarters. With a view to expediting the ordinary conduct of Council affairs, an office and staff have been organized, rules adopted and subcommittees formed, and a bulletin has been developed by means of which questions of policy may be promptly submitted to the Council. During the year the membership was increased to twelve by the addition of Drs. L. D. Bristol, Anthony J. Lanza and Clarence D. Selby, while one member, Dr. Morton R. Gibbons, resigned.

NOMENCLATURE IN INDUSTRIAL DISEASE

The Council early concluded that the terminology used in industrial medical practice was in large part unscientific, if not chaotic. Usages have been derived from a variety of sources—court decisions, legislative and administrative practice, pronouncements of industrial organizations, and proceedings of technical committees and their publications. It was the opinion of the Council that by reason of this widespread confusion the medical profession needed an analysis of current industrial medical parlance to provide common understanding and acceptance of meanings. A Committee on Nomenclature was appointed to study the problem from a broad point of view and to arrange for the publication of a compendium. In compiling this list and defining its terms, the committee intends to consult with all other interested agencies, including bureaus and councils of the American Medical Association, in order that all possible sources of accurate and competent information may be represented. The publication of this material in book form will provide the profession with a useful reference in a field that has not heretofore been adequately treated.

MEDICAL EDUCATION AND INDUSTRIAL HEALTH

The Council has been impressed by the scarcity of opportunities for training in industrial medicine and hygiene in all categories—undergraduate teaching, organized graduate courses and postgraduate education. The advice and assistance of the Council on Medical Education and Hospitals were solicited and the conclusion was reached that most of the early activities of the Council on Industrial Health could profitably be directed toward the improvement of educational opportunities. Communications have been received from all but two of the four year medical colleges regarding the present status of undergraduate teaching in industrial hygiene and from all known departments in schools of medicine and public health conducting organized graduate courses. Data have been collected and organized in useful form for demonstration and publication. As the study continues, plans will be formulated designed to impress educators with the need of making the profession generally aware of its responsibilities and of the magnitude of its potential contribution to the industrial health program. Likewise, in the conduct of its early survey in the educational field the Council has learned of teaching programs for other than professional participants in the industrial health field which it might profitably explore.

PRODUCTION OF AUTHENTIC LITERATURE

The issuance periodically of authentic articles was considered an important part of the Council's educational program. The first of a series of publications on silicosis has appeared. Arrangements are being made for the preparation and publication of a series of articles covering the administration and maintenance of an adequate industrial medical service, with particular emphasis on the special needs of small industrial plants.

FIRST ANNUAL CONGRESS ON INDUSTRIAL HEALTH

In January 1939 the Council conducted the first of a series of conferences on industrial health. The underlying note of the inaugural meeting was that the practicing physician must attempt to orient himself in a rapidly expanding field. The aims and accomplishments of other organized agencies were clarified and the character of industrial medicine appraised and its scope and interrelationships reemphasized and redefined. The Council considers that this meeting satisfactorily fulfilled its objectives and has gone on record as approving an annual congress as one of its regular educational functions.

CONTACTS WITH STATE ASSOCIATIONS

The Council has been in correspondence with officials of the constituent medical societies in an effort to develop means for regular correspondence and interchange of opinions, preferably by the formation of committees on industrial health in the state societies. In many states the desirability of this arrangement has been realized, and at present twenty-five state medical associations have organized such committees and a few others have signified their intention to cooperate with the Council in this way. In recognition of the importance of these relationships, the Council has appointed a Committee on State Associations, which will have the effect of coordinating the pronouncements and recommendations of the Council with the activities of the state groups.

CLEARING HOUSE OF INFORMATION

From the outset it has seemed important to the Council that some arrangement be made for the collection and evaluation of contributions to the literature on the etiology, diagnosis, treatment and prevention of hazards associated with occupation. This activity was originally suggested by the Section on Dermatology and Syphilology. As sources of authentic information improve it is confidently expected that the Council office will be in a good position to satisfy the requirements of physicians who are in need of help in the solution of industrial problems.

REVIEW OF COMPENSATION LAWS

Throughout all the preliminary discussions which led to the creation of the Council on Industrial Health, considerable emphasis was placed on the desirability of uniformity in compensation practice in the various jurisdictions. The determination of a sound approach to compensation activities has given the Council great concern. In this regard special attention has been paid to the functions and accomplishments of other agencies of the American Medical Association which have studied and acted on these matters. At present the conclusion reached is that the Council should concern itself primarily with standards and accomplishments of medical practice under workmen's compensation laws. As one of its important objectives, the Council proposes to determine which of the administrative agencies in charge of workmen's compensation now employ suitable medical representation and in what directions such medical boards could be expanded and their value emphasized.

RELATIONSHIP OF TRAUMA TO DISEASE

Certain instances have come to the attention of the Council in which industrial commissions or courts have ignored or superseded commonly accepted scientific principles and knowledge in making awards, particularly through associating organic pathologic changes with previous trauma or by ascribing aggravation of preexisting disease to trauma. It is not safe to assume that any action taken by a scientific organization will influence these administrative agencies. It is the opinion of the Council, however, that an appraisal or medical survey of the relationship between trauma and disease, approached primarily from the point of view of the pathologist, might constitute a more reliable groundwork of reference which such tribunals ultimately could not ignore. As a preliminary step in this direction the Council has suggested a cooperative survey with the Section on Pathology and Physiology of the Scientific Assembly regarding the relationship between trauma and appendicitis.

REHABILITATION

The Council has been invited to participate in discussions covering the several aspects of vocational rehabilitation. Conferences will probably be called soon looking toward improvement in the contributions of all agencies involved—the rehabilitation groups, the compensation commissions and the medical profession. The Council has been disinclined to assume the initiative in developing conversations designed to clarify and improve the functions of these agencies until a greater degree of information is available, especially on the proper interest which medicine has in the total rehabilitation picture. It is in this phase of the problem that the Council is most likely to interest itself for the time being, in view of its opinion that rehabilitation is not a medical function beyond the provision of adequate medical treatment from the inception of the injury.

MEDICAL ORGANIZATION IN INDUSTRY

Sound opinion concedes that the next great impetus given the industrial health movement will be an effort to provide the employee in the small plant with the same advantages of controlled working environment and scientific preventive medicine as now exist in many of the larger establishments. If this trend is substantially realized, many physicians will be called on to undertake, at least as a part time activity, preventive medical control over small manufacturing plants. Satisfactory results will depend in large measure on the degree to which these physicians have comprehended the fundamentals of industrial hygiene and their practical application of this knowledge. It is the plan of the Council therefore to aid in every ethical way the development of such services to small industries. Arrangements for extension courses and postgraduate education through the state and county medical organizations will be emphasized. The published reports of the Council will stress the functions of medical organization in industry, the material being so developed as to be ultimately available as a handbook for physicians and industrial executives.

ACTIVITIES OF INDEPENDENT AGENCIES

Many physicians realize the widespread interest in the industrial health movement, but few are aware of the full extent of its complexity and ramifications. There are more than 2,000 trade associations, not a few of which have developed programs for safety and for the elimination of hazards either individually or through established foundations. Dozens of manufacturing concerns, particularly insurance carriers, have in the same fashion supported such enterprises as laboratory and field investigations, code development, determination of safe concentrations of toxic agents and health education in general. Federal and state departments of labor, labor organizations and workers individually are demonstrating increasingly widespread interest in conditions of employment. During the past several years the United States Public Health Service has expanded its facilities for investigation and control of occupational hazards and has fostered the development of bureaus of industrial hygiene in state departments of health and in a few cities. The Council foresees as the basis of one of its most useful functions an ability to inform the profession about the spread of the industrial health movement and to correlate its own program with the programs of independent agencies which have obviously a real interest in and important contributions to make to improved health for the worker.

Summary

The Council on Industrial Health has completed its first year of organized activity and much attention has been directed to internal organization and scope. The establishment of a headquarters office and a bulletin have greatly facilitated the conduct of its affairs. Preliminary work designed to introduce order into the chaotic field of industrial medical nomenclature is approaching completion. Plans are under way to create an abundance of opportunities for sound instruction in the fundamentals of industrial hygiene designed for the undergraduate medical student and for the postgraduate education of physicians. Contacts have been established with all the constituent associations, and committees of industrial health have been established in most of the states where the degree of industrialization seems to warrant it. Steps have been taken to make available authoritative information on clinical and administrative phases of industrial health. Ramifications of medical relationships under workmen's compensation are realized and the Council will work toward uniformity of administration and elevation of medical standards. The Council has instituted an investigation into the relationship between trauma and appendicitis. Its cooperation has been invited to determine the degree of medical interest involved in vocational rehabilitation. Independent agencies interested in industrial health have been investigated and activities of those which have important contributions to make to the health of the worker will be brought to the attention of the medical profession.

Bureau of Legal Medicine and Legislation

FEDERAL LEGISLATION

Seventy-Fifth Congress. — The Seventy-Fifth Congress adjourned June 16, 1938. The Federal Food, Drug and Cosmetic Act had then passed both houses. On June 25 it was approved by the President. The act does not become wholly effective until the expiration of one year after the date of its approval, but its provisions relating to new drugs became effective immediately. An analysis of the act was published in THE JOURNAL, July 23, 1938, pages 324-326.

During the closing days of the Seventy-Fifth Congress, a bill was passed to amend the United States Employees' Compensation Act so as to give osteopaths the same status under that act as is given to doctors of medicine. It was approved

by the President May 31, 1938. The passage of this bill can probably be attributed to a statement on the floor of the Senate that the medical profession had withdrawn opposition to it. No one authorized to speak for the Association had made any such representation and in fact the bill was as obnoxious as ever. The facts surrounding the passage of the bill were set forth in detail in THE JOURNAL, May 28, 1938, page 1838.

Seventy-Sixth Congress.—The Seventy-Sixth Congress convened in its first session Jan. 3, 1939. Already, when this report is being written, March 24, 1939, more than 7,500 bills and resolutions have been introduced and the session is still in progress. Even allowing for the introduction of identical bills in both houses, the volume and diversity of the legislation proposed is flowing, but it is probable that much of it will not be enacted. Abstracts of bills that seem to be of medical interest have been published weekly in THE JOURNAL. Among such bills, the following appear to call for special comment:

Wagner Amendment to Social Security Act.—Senator Wagner of New York introduced on February 28 a bill, S. 1620, proposing to expand the Social Security Act so as to give life to the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities, appointed by the President in August 1935. This bill is sometimes referred to as "The Wagner Bill," although its sponsors have selected for it, if it passes, the title "The National Health Act of 1939." The title is obviously adroitly chosen. This bill was referred to the Senate Committee on Education and Labor, where it is pending when this report is being prepared.

While no companion bill has been introduced in the House of Representatives, yet the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities are before the House, having been transmitted by the President Jan. 23, 1939, with the recommendation that they be given a careful study by the Congress. (H. R. Doc. No. 120, 76th Congress, first session.) In the House, the President's message and the report of the Interdepartmental Committee were referred to the Committee on Ways and Means, but up to present writing no action has been taken with respect to them. The essential difference between the situation in the Senate and the situation in the House of Representatives is that the Senate has before it the Wagner bill, proposing specific amendments to the Social Security Act to carry into effect the recommendations of the Interdepartmental Committee, while the House of Representatives has before it only the President's message and the report and recommendations of the Interdepartmental Committee and is left to formulate such legislation, if any, as it deems proper to give effect to those recommendations.

An analysis of the Wagner bill proposing amendments to the Social Security Act, looking toward the extension of medical and health services throughout the United States under the direction and supervision of the United States Public Health Service, the Children's Bureau and the Social Security Board, was published in THE JOURNAL March 11, 1939. Essentially, the bill proposes to provide federal subsidies to induce the several states to undertake new activities and to enlarge activities already under way, in certain economic, health and medical service fields named in the bill. The funds to be paid by the federal government toward the state activity are to be matched to a certain extent by funds appropriated by the state. The bill does not propose any specific taxes to cover the cost of the new and enlarged services but leaves the very large expense proposed by the bill to be met by increases in the general taxes or else by savings to be effected by the federal and state governments through the discontinuance or limitation of various federal and state services already under way.

The principal changes in the Social Security Act proposed by Senator Wagner's bill, of medical interest, include the following:

The Social Security Act provides federal subsidies to enable states to extend and improve "services for promoting the health of mothers and children." The pending bill proposes to authorize greatly increased subsidies to be allotted to the states to enable them not only to promote the objects provided for in the existing law but also to "provide medical care during maternity and infancy, including medical, surgical, and other related services, and care in the home or institutions, and facilities for diagnosis, hospitalization, and after care."

The Social Security Act provides for federal subsidies to enable the states to extend and improve services for locating crippled children and for providing medical, surgical, corrective and other services and care, and facilities for diagnosis, hospitalization and after-care for children who are crippled or who are suffering from conditions which lead to crippling. The pending bill proposes to enlarge the coverage to include an extension and improvement of services, supplies and facilities for the medical care of all children, especially children physically handicapped from any cause who are in need of special care.

The Social Security Act authorizes federal subsidies to aid the states, counties, health districts and other political subdivisions to establish and maintain adequate public health services, including the training of personnel for state and local health work. The pending bill proposes to permit allotments only to states and to authorize specifically the making of such allotments "to extend and improve public health work, including services, supplies and facilities for the control of tuberculosis and malaria, for the prevention of mortality from pneumonia and cancer, for mental health, and industrial hygiene activities" and for the development of more effective measures for carrying out such purposes, including the training of personnel. The Social Security Act furthermore authorizes a federal appropriation for expenditure by the Public Health Service for investigation of disease and problems of sanitation. The pending bill proposes to increase this appropriation and to authorize the Public Health Service, through the National Institute of Health, to make investigations of health, disease, sanitation and matters pertaining thereto.

Over a period of three years the pending bill contemplates an increase in federal expenditures of $196,550,000, exclusive of expenditures for administrative purposes, over the expenditures authorized by the Social Security Act for maternal and child health services, for services for crippled children and for public health work. What the increase in expenditures thereafter will be cannot be determined from the pending bill, because after 1942 no definite amounts are authorized, only as much as may be necessary.

The Social Security Act contains no authorization for appropriations for grants to states for hospitals and health centers. The pending bill proposes to add a new title to the act whereunder grants will be made by the Public Health Service to assist states to establish and improve hospitals and to assist, for a period of three years, in defraying the operating costs of added facilities. For the establishment and improvement of general hospitals the bill contemplates a federal appropriation of $8,000,000 for the fiscal year ending June 30, 1940, of $50,000,000 for 1941, of $100,000,000 for 1942 and of such sums "as may be necessary" thereafter. For mental and tuberculosis hospitals the bill proposes annual federal appropriations of such sums as may be necessary. Within the provisions of the bill, the term hospital is to include health, diagnostic and treatment centers, institutions and related facilities.

The Social Security Act does not authorize any appropriation to assist the states to extend and improve medical care generally. The pending bill does. It contemplates the addition of a new title to the Social Security Act whereunder grants may be made by the Social Security Board to the states to enable them to extend and improve medical care, including all services and supplies necessary for the prevention, diagnosis and treatment of illness and disability, and to develop more effective measures for carrying out the purposes of the new title, including the training of personnel. For the fiscal year ending June 30, 1940, an appropriation of $35,000,000 is to be authorized for this purpose and thereafter such sum annually as may be necessary.

The Social Security Act does not contain any authorization contemplating cash payments by the states to individuals who are temporarily disabled from whatever cause. The pending bill would add to the act a new title to authorize grants by the Social Security Board to assist the states in the development, maintenance and administration of plans for paying compensation to persons temporarily unable to or unfit for work by reason of injury or illness not arising out of or in the course of employment. For the fiscal year ending June 30, 1940, the sum of $10,000,000 is to be authorized and thereafter such sum annually as may be necessary. No state may, how-

ever, receive any of the federal funds unless it has a plan or plans that have been approved, presumably by the Social Security Board, under which the board finds that "reasonably adequate medical services, including preventive services, are available to minimize disability among those covered under the state plan for temporary disability compensation."

The Wagner Social Security Act amendment bill was discussed editorially in THE JOURNAL, March 11, 1939, as follows:

> The House of Delegates of the American Medical Association, in considering the National Health Program, approved expansion of public health service where need could be shown, approved medical care to the indigent and to the medically indigent where need could be shown, and approved even expansion of hospital construction, provided the need could be demonstrated, recommending, however, utilization of existing facilities to the utmost before a new building program was authorized. The House of Delegates also approved the principle of assistance to the worker for temporary disability resulting from illness. Now the Wagner act goes far beyond these recommendations: First, it authorizes the expenditure of vast sums before the need has been shown; second, it expands tremendously the work of the Children's Bureau, the United States Public Health Service and the Social Security Board, without any demonstration that such expansion is warranted; third, it proposes to place the state health officers in a commanding position as far as concerns the dispensing of the funds allotted, subject only to approval of all plans by the federal agency to which the task is assigned. Vast funds are provided for the construction of hospitals and health centers and for their maintenance, notwithstanding the fact that there is not yet available any dependable determination of the exact nature and extent of needs that prevail. Who can imagine for a moment that the money once appropriated will not be expended? Finally, the measure introduces the principle of allotment of federal money to the individual states for medical care, by the Social Security Board, without specifying the means to be used in the individual states for providing such service other than to demand the approval of the Social Security Board.
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> As is emphasized in the analysis made by the Bureau of Legal Medicine and Legislation, the advisory councils to be set up are vague as to their membership, their duties and their responsibilities. There is one criticism that is to be made above all others in relation to this proposed legislation, namely its extreme vagueness in the light of the vast sums of money to be dispensed and the great powers conferred on certain federal officers in the control of the spending, and particularly the decision as to which of the individual states shall benefit by the expenditures.

Health Insurance.—A health insurance bill entitled "A Bill to aid in alleviating the loss caused by sickness," S. 658, was introduced by Senator Capper of Kansas, identical with a bill introduced by him in the Seventy-Fifth Congress. It proposes to authorize annual federal appropriations of $200,000,000 to induce the several states to develop and maintain systems of health insurance. The bill follows closely the provisions of the so-called Epstein health insurance bill. It is pending, when this report is being written, in the Senate Committee on Finance.

Tuberculosis.—A bill introduced by Senator Murray of Montana, S. 471, proposes to authorize an appropriation of $5,000,000 immediately and during the next succeeding four fiscal years unlimited annual appropriations to assist the several states in providing hospital beds for tuberculous persons. Under the provisions of the bill the federal government is to pay to each state which has submitted to the Surgeon General of the Public Health Service plans satisfactory to him 75 per cent of the cost of providing additional hospital beds and in addition a sum not to exceed $1.25 a day per bed actually operated. A state, to obtain the federal subsidy, must appropriate a sum equal to 25 per cent of the total amount required to provide the added hospital beds, and the state or a political subdivision of it must pay at least 50 per cent of the cost of operation. This bill is pending in the Senate Committee on Commerce.

Narcotic Drugs.—A joint resolution to authorize a survey of narcotic conditions in the United States by the United States Public Health Service, H. J. Res. 103, was introduced by Representative Coffee of Washington and is pending in the House Committee on Interstate and Foreign Commerce. It proposes to authorize the United States Public Health Service to investigate the conditions in the United States "existing now and during the past twenty-five years with respect to the importation, production, distribution, and use of narcotics," in order to obtain information with respect to (*a*) the extent of unlawful activities in narcotics, and the number of persons connected with such activities; (*b*) the extent of addiction to the use of narcotics, the number of addicts, the causes of addiction, the availability and use of various kinds of treatment, and other related matters; and (*c*) the conditions and trends with respect to the prevalence of evils arising from narcotics, with a view to aiding Congress to enact laws and aiding the law enforcement agencies to administer the laws, so as properly to protect the people from such evils. The Surgeon General of the Public Health Service is to report the results of his investigation to Congress, if this joint resolution is enacted, and he is to recommend any necessary legislation.

Medical Care for Transients or Nonresidents.—Two bills, H. R. 2974 and H. R. 2975, were introduced by Representative Voorhis of California proposing to amend the Social Security Act so as to authorize the appropriation of federal funds to assist the states to provide medical care for nonresident needy persons or for needy transients. Both bills are pending in the House Committee on Ways and Means.

Epilepsy.—The creation of a National Epilepsy Institute in the United States Public Health Service is proposed in S. 1557, introduced by Senator Shipstead of Minnesota. This bill, still pending in the Senate Committee on Commerce, is modeled closely after the National Cancer Institute Act, passed by the Seventy-Fifth Congress. It proposes to authorize the institute to conduct researches, investigations, experiments and studies relating to the cause, diagnosis and treatment of epilepsy, to assist and sponsor similar research activities by other agencies, public and private, and to promote the coordination of all such researches and activities and the useful application of their results, with a view to the development and widespread use of the most effective methods of prevention, diagnosis and treatment of epilepsy.

Cancer.—Representative Rogers of Massachusetts has introduced a bill, H. R. 4585, proposing to amend the National Cancer Institute Act so as to authorize an additional appropriation of $2,300,000 for the fiscal year ending June 30, 1940, and unlimited appropriations annually thereafter, to assist states, counties, cities or other political subdivisions to extend and improve measures through public and private institutions and organizations for the diagnosis, treatment and control of cancer, including the provision of hospital, diagnostic, clinic and other facilities for the diagnosis and treatment of persons suffering from cancer or suspected of suffering from that disease.

Financial Aid to the Disabled.—Nine bills, in addition to the Wagner amendments to the Social Security Act, propose to amend that act so as to provide federal funds to assist states to make cash payments to individuals who are physically disabled. None of these bills propose that medical services be supplied. Under the provisions of five of the bills, H. R. 42, H. R. 1960, H. R. 3999, H. R. 4035 and S. 1218, a person must be permanently disabled before he is entitled to the contemplated benefits of the bill. The other bills, H. R. 172, H. R. 2000, H. R. 2753 and H. R. 5038, make a physical disability or handicap a condition precedent to the receipt of benefits but are not clear as to such disability or handicap being permanent. All the House bills are pending in the House Committee on Ways and Means. The Senate bill is before the Senate Committee on Finance.

Deduction of Medical Expense Under the Income Tax Law.—Two bills have been introduced by Representative Tenerowicz of Michigan proposing to permit federal income taxpayers to deduct in the computation of their income taxes amounts expended during the taxable year for medical services. One bill, H. R. 4747, places a limit of $500 on the amount that may be so deducted; the other, H. R. 4779, imposes no such limit. Both bills are pending in the House Committee on Ways and Means.

Food, Drug and Cosmetic Act.—Under the new Federal Food, Drug and Cosmetic Act a drug that enters into interstate commerce or commerce in the District of Columbia or other jurisdiction under exclusively federal control must be labeled so as to show its common name or, if it is fabricated of two or more ingredients, its several ingredients. Drugs intended for use by man and containing any quantity of certain narcotic or hypnotic habit-forming substances must be labeled "Warning—May be habit forming." Drugs dispensed on written bona fide prescriptions of physicians, dentists and

veterinarians are under certain conditions exempted from these labeling requirements, except that a drug dispensed in the course of the conduct of a business of dispensing drugs pursuant to diagnosis by mail is not so excepted. This requirement becomes effective June 25, 1939. How many nostrums are sold on the basis of actual diagnoses by mail is not known. The provisions of the new law, however, seem to threaten with particular force one of them, Dr. Nathan Tucker's Asthma Specific, a preparation exploited primarily for the relief of asthma. The preparation is used as a spray and is labeled as containing variant quantities of cocaine per fluidounce, from 5 grains upward, although the proprietors of the nostrum claim that when it reaches the consumer it contains only minute quantities of cocaine, the residue having been converted into ecgonine. Whether it contains any other potent ingredients is not known.

Legislative relief is being sought by the proprietors of Dr. Nathan Tucker's Asthma Specific through H. R. 3951, a bill that proposes to exempt from the requirements that apply to nostrums sold on the basis of diagnoses by mail "a drug prescribed or dispensed by a physician pursuant to a diagnosis made from oral or written information given by the patient and where such drug is not dangerous to health and has been effective in relieving the condition for which it is prescribed in at least one thousand cases per year during the last twenty years preceding the approval of this Act." The effect of the enactment of this bill would be to give to the proprietors of Dr. Nathan Tucker's Asthma Specific a chance to show that cocaine is not dangerous to health or to show that it contains no cocaine and therefore, if labeled as containing cocaine, that it is misbranded under the law; also to show that the extensive use of their nostrum is not due to the habit forming properties of the cocaine put into it or of any derivative of that cocaine. This bill is pending in the House Committee on Interstate and Foreign Commerce.

Social Security Act and Scientific and Educational Organizations.—A bill is pending in the House of Representatives Committee on Ways and Means, H. R. 101, introduced by Representative O'Day of New York, proposing to bring under the old age and unemployment benefit provisions of the Social Security Act organizations operated exclusively for religious, charitable, scientific, literary or educational purposes, and the employees of such organizations. Such employees and their employers will, if the bill is enacted, become subject to the taxes imposed by the act and entitled to such benefits as the act may provide. According to present information, the House Committee on Ways and Means has decided to postpone indefinitely action on this proposed amendment to the Social Security Act, notwithstanding the fact that it has the approval of the Social Security Board.

Legislation Relating to Veterans.—The Seventy-Fifth Congress authorized the House Committee on World War Veterans' Legislation to make a comprehensive survey and inspection of soldiers' hospitals and other Veterans' Administration facilities, including hospitals with which the government has a contract for ex-service men of any war in which the United States was engaged. This investigation was made and a report submitted to the House of Representatives, Jan. 30, 1939. The committee reported that the Veterans' Administration is maintaining a high standard in care and treatment of beneficiaries and is continually studying new diagnostic and treatment methods which may benefit the disabled American veteran. From the contents of the report it would seem that the investigation was primarily for the purpose of inspecting the physical equipment of the various hospitals and the manner in which they are operated. The report contained no recommendation as to the need of additional hospitals. Concerning the number of veterans in such hospitals, the report stated:

> Of the 50,670 veterans under treatment at the end of last year, 47,285 were in facilities controlled by the Veterans' Administration; 2,512 in other Government hospitals; and 873 in State or civil institutions. Over 63 per cent of these veterans in all hospitals are receiving treatment in the facilities in the State of their reported home addresses. Since March 3, 1919, when the acquisition of the Government hospitals was first authorized for the treatment of veterans of the World War, there have been 1,863,289 admissions of veterans of the United States to hospitals, of which 152,966 were made during the last year. This load has been increasing since 1919.

As of June 30, 1938, there was in Veterans' Administration facilities a total of 51,991 hospital beds, apportioned to the different classes of patients, as follows: neuropsychiatric, 28,119; tuberculosis, 5,121; general, 11,662; general: homes, 7,089. During the fiscal year 1939 it is proposed to add 3,453 new beds, as follows: neuropsychiatric, 1,334; tuberculosis, 155; general, 1,012; general: homes, 952. During the fiscal year 1940 it is proposed to add 6,731 new beds, as follows: neuropsychiatric, 3,686; tuberculosis, none; general, 2,653; general: homes, 392. If the proposed plans are carried out, there will be available, as of June 30, 1940, a total of 62,175 beds in Veterans' hospitals, as follows: neuropsychiatric, 33,139; tuberculosis, 5,276; general, 15,327; general: homes, 8,433. The present hospital building program of the Veterans' Administration is being carried out under an appropriation of only $4,500,000 made available directly by the Seventy-Fifth Congress, but this is being supplemented by a sum three times as large, $13,268,200, donated by the Public Works Administration.

The Administrator of Veterans' Affairs contemplates as an ultimate goal 100,000 beds in Veterans' hospitals, which will make available one bed for every forty veterans throughout the United States. He estimates that the peak load of hospitalization will be reached in 1949 or 1950. What is to become of these hospital facilities as that load declines is not clear, especially in view of the proposal in the pending Wagner bill to amend the Social Security Act that, if the bill should be enacted, may increase the number of beds in government hospitals in the United States within the next three years by as many as 79,000 beds. With an average of 31.1 per cent of the beds in the general hospitals of the United States unoccupied in 1938, the need for any such enlarged hospital program is not apparent.

It is impracticable to discuss in detail the provisions of the various bills now pending in the Seventy-Sixth Congress, proposing to construct either new hospitals or additions to existing facilities. There are pending, however, twenty-one bills proposing (1) to make available a minimum of 2,409 additional beds specifically designated for general medical and surgical disabilities, (2) to construct six new hospitals, with a combined minimum bed capacity of 2,750 beds, for the accommodation of veterans suffering from any type of disability for which they are entitled to hospitalization, (3) to construct a hospital of 200 bed capacity to accommodate veterans suffering from diseases of the chest, (4) to construct a neuropsychiatric hospital to accommodate 400 patients and (5) to construct a 300 bed addition to take care of general medical, surgical and neuropsychiatric disabilities. No action has been taken on any of these bills yet. One of the bills is pending in the Senate Committee on Finance. All others are before the House of Representatives Committee on World War Veterans' Legislation.

Contract and Acting Assistant Surgeons, Spanish-American War.—The injustice that has been done contract surgeons of the Spanish-American War in the matter of pensions continues. As has been previously reported to the House of Delegates, women nurses who served under contract as army nurses in the active military service of the United States during the Spanish-American War are entitled to service pensions; that is, pensions granted them because of disability incurred other than in the line of duty or because of advancing age. Contract women nurses are therefore placed on a parity with the commissioned and enlisted personnel. Contract surgeons, on the other hand, are denied service pensions and remain in a class by themselves. There are pending two bills, S. 259, introduced by Senator McNary of Oregon, and H. R. 2540, introduced by Representative Smith of Washington, which propose to accord contract surgeons of the Spanish-American War the same rights to pensions as are now accorded persons who served in the war under a similar status. These bills are pending, respectively, in the Senate and House Committees on Pensions.

Federal Department of Health.—Three bills are pending proposing to authorize the reorganization of the civil administrative agencies of the executive branch of the government: S. 1706, introduced by Senator Byrd of Virginia, H. R. 4425, introduced by Representative Cochran of Missouri, and H. R. 4893, introduced by Representative Angell of Oregon. None

of these bills, however, either provide for the establishment of a federal department of health or contain any authorization whereby such a department may be created. All three bills, on the other hand, definitely preclude the creation of any new department in any reorganization scheme that may eventuate from them. On March 6, however, Representative Pfeifer of New York introduced a bill, H. R. 4791, proposing the establishment of a federal executive department of health, with a secretary of health at its head, appointed by the President from the medical profession, with the advice and consent of the Senate. The duty of the new department would be to protect and maintain health and sanitation by (1) conducting research, experiments and surveys, formulating and fostering plans, and compiling and disseminating information; (2) performing such other functions relating thereto as shall be authorized by law, and (3) cooperating with official agents established by law in the several states and subdivisions thereof. To this federal department of health would be transferred the Food and Drug Administration of the Department of Agriculture; the Bureau of Census, Division of Vital Statistics, of the Department of Commerce; the Freedman's Hospital and St. Elizabeths Hospital of the Department of Interior; the Children's Bureau of the Department of Labor; and all functions of the Public Health Service and the Bureau of Narcotics, now operating under the Treasury Department, and the Health Department of the District of Columbia. Furthermore, the President would be authorized at any time within ninety days after the passage of the act to transfer to the new department the whole or any part of any bureau, service or other agency of the government primarily engaged in fostering and promoting health and sanitation. The Secretary of Health, according to the provisions of the bill, will be authorized, with the approval of the President, to reorganize or consolidate any of the bureaus, services or offices under his jurisdiction, redistribute the functions thereof, or set up in the Department of Health such subdivisions as may best be adapted for accomplishing the purposes for which the department is to be established. The bill is pending in the House Committee on Expenditures in the Executive Department.

United States Postgraduate Medical and Surgical College.—A bill, introduced by Representative May of Kentucky, H. R. 2423, proposes to establish a United States Medical and Surgical College to be located in the District of Columbia. This bill is identical with a bill introduced by the same author in the Seventy-Fifth Congress. It proposes to authorize an appropriation of $10,000,000 to construct and equip necessary buildings and the appropriation annually of such sum as may be necessary to carry out the purposes of the bill. Graduates of accredited medical and surgical colleges would be admitted to this so-called medical West Point for training for army, navy or public health work, on designation by Senators and Representatives in Congress. This bill is pending in the House of Representatives Committee on Interstate and Foreign Commerce.

Cooperative Medical Service.—A bill, H. R. 4312, introduced by Representative Hull of Wisconsin, proposes to amend the Code of the District of Columbia so as to provide for the organization and regulation of cooperative associations of various kinds. An association organized under the bill would be authorized to engage in any one or more lawful modes of acquiring, producing, operating, furnishing, exchanging and distributing any type or types of services for the primary and mutual benefit of the patrons of the association, and of the patrons of such patrons, if any, as ultimate consumers. The bill proposes that an association formed under the act which arranges for the rendering to its members of licensed professional services on a nonprofit basis shall not be subject to the insurance laws nor be construed as being in violation of any rule against corporate practice of professions or in violation of statutes regulating licensure of professions. Any group incorporated under any other law of the District of Columbia and operating on a cooperative basis or any unincorporated group operating on such a basis in the District of Columbia is to be authorized to secure the benefits proposed by this bill if it desires to do so. No association, or method or act thereof, which complies with the provisions of the bill is to be deemed a conspiracy or a combination in restraint of trade or an illegal monopoly, or an attempt to lessen competition or fix prices arbitrarily. This bill was referred to the House of Representatives Committee on the District of Columbia, where it is now pending.

STATE LEGISLATION

Through a legislative reporting service, the Bureau of Legal Medicine and Legislation receives daily when any state legislature is in session notices of bills of interest to the medical profession that have been introduced. Ordinarily such notices are received about the third day after the introduction of the bill and report only its number and title, its sponsor and the committee to which it has been referred. Obviously, a state medical association that maintains its own legislative service at the state capital or has its headquarters there usually obtains such information before the Bureau of Legal Medicine and Legislation in Chicago, but most of our state associations are not so fortunately situated. The Bureau, therefore, immediately on receipt of notice that a bill has been introduced reports its introduction to the president, the secretary and the chairman of the legislative committee of the state association immediately concerned. This reporting in triplicate enables the officers named to confer among themselves at once, even though located at more or less remote places, to determine the policy of their association with respect to the measure.

As soon as possible after the introduction of a bill, the legislative reporting service supplies a copy of it, and it is then analyzed by the Bureau in the light of the laws already in force in the state and of the policies of the American Medical Association. If the analysis shows anything of moment, a letter stating the facts is immediately sent to the secretary of the association, copies of which are sent to the president and the chairman of the legislative committee, for their guidance. In any event, an abstract of each bill that is deemed of interest to the profession in the particular state is submitted to THE JOURNAL for publication and published so far as available space in THE JOURNAL permits, so that every Fellow of the Association and every subscriber to THE JOURNAL may know what legislation is pending in his own state. In this way, interested Fellows and members of the Association in every state, and subscribers to THE JOURNAL, learn what is going on more promptly than would otherwise be possible, for the state journals, with only two exceptions, appear only monthly whereas the service rendered by the Bureau, through THE JOURNAL, is weekly. A similar service is rendered as the bill progresses toward defeat or enactment; the Bureau receives from its legislative reporting service reports of action by committees and by either branch of the legislature and of the enactment or defeat of the bill, if it reaches a final vote. As has been pointed out, although a few state medical associations are so highly organized and fortunately situated as not to be in need of such service as is described, to a large number of such associations the service seems to be of value.

After the close of each calendar year, the legislation that has been considered by state legislatures that met during the year is summarized and the result published in THE JOURNAL, to keep the medical profession of the country informed of the trends of legislation and legislative opinion in the various legislative fields of medical interest. The summary of state legislation for 1938 was published in the Organization Section of THE JOURNAL, Feb. 11 and 18, 1939. A brief discussion of some of the most important state legislation considered during 1938 follows.

Laws Relating to the Healing Art.—A new Massachusetts law postponed until Jan. 1, 1942, the effective date of a law enacted in 1936, which was to raise the educational qualifications exacted of applicants for licenses to practice medicine by requiring such applicants to have completed two years of premedical collegiate work and to have graduated from a chartered medical school approved by the secretary of the board of registration and medicine, the commissioner of education and the commissioner of public health. Laws were enacted in Mississippi and New York setting out causes for the revocation, suspension and refusal of licenses in addition to the causes enumerated in the prior laws. An osteopathic practice act passed in South Carolina and osteopaths are now licensed by an unsupervised and uncontrolled board of osteopathic examiners. A resolution was adopted in Massachusetts directing a special unpaid commission to investigate the advisability of establishing an independent board of examination and registration in osteopathy and a similar board in chiropractic.

Contraception and Venereal Disease Prophylactics.—A new Kentucky law prohibits the retail sale or distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases, except by licentiates of the state board of pharmacy and licentiates of the board of medical examiners regularly licensed to practice medicine.

Laws Designed to Combat Syphilis.—Laws were enacted in New Jersey, New York and Rhode Island to require every physician attending a pregnant woman to take a sample of her blood and to make or cause to be made a standard serologic test for syphilis. Laws to require, as a condition precedent to the issue of marriage licenses, that both parties to the proposed marriages present certificates from physicians that they are free from stated venereal diseases were enacted in Kentucky, New Jersey, New York and Rhode Island.

Compulsory Health Insurance.—Bills proposing the establishment of systems of compulsory state health insurance were considered in 1938 in Massachusetts, New York and Rhode Island, but all these bills failed of enactment. All were patterned closely after the so-called Epstein social security bill for health insurance. However, a new New York law created a state commission to study and recommend ways and means of minimizing risks of illness through the extension of public health services; for furnishing adequate medical care for persons of low income, which have to be met from public funds; for making public funds available for the support of medical education and for studies for raising the standards of medical practice; for medical care to the indigent; for using private institutions in allocating public funds for the rendition of medical service to the public; for effecting adequate administration and supervision of the health functions of the state government, and, if deemed advisable, for consolidating under a separate department all federal and state health and medical services and activities. This commission was directed to report to the legislature before Feb. 15, 1939, but the New York legislature in 1939 was asked to extend its existence for another year for the purposes stated.

Hospital Service Corporations.—Laws were enacted in Kentucky and New Jersey authorizing the formation of corporations to provide on a so-called "nonprofit basis" "hospital care" to their members or subscribers. The activities of such corporations under these laws would seem to be limited to the rendition of hospital care and not to include medical or surgical care. A new Louisiana law provides for the formation of so-called service companies, authorized to make agreements with members or subscribers to furnish hospitalization and incidental drugs on the occurrence of sickness or other physical disability of a member or subscriber. Whether such companies may also contract to furnish medical care is not clear from a perusal of the law.

Narcotic Drugs.—The uniform narcotic drug acts in force in Louisiana and New Jersey were so amended in 1938 as to make cannabis or marihuana a narcotic drug within the meaning of the acts. The New York uniform narcotic drug act was so amended as to redefine cannabis.

Vaccination.—A new Virginia law authorizes local boards of health, in addition to rights previously possessed at law, to require, whenever they deem it necessary to prevent an epidemic, the compulsory administering of toxoids.

Workmen's Compensation.—So far as can be ascertained, no workmen's compensation legislation of interest to the medical profession was enacted in 1938.

Pneumonia Control Program.—A total of $35,000 was appropriated in New Jersey for the purchase and distribution of type I and type II pneumonia serum to be available free of charge to persons afflicted with pneumonia and financially unable to purchase the necessary serum.

STATE LEGISLATION BY INITIATIVE

In some states, chiefly in the West and Southwest, the constitution permits the electorate to enact legislation directly through their votes at the polls and not through the legislature, a process that is commonly referred to as the initiative. Sometimes procedures have been instituted under the initiative to accomplish purposes that would hardly have received serious consideration. The chiropractic and osteopathic initiative acts adopted in California by the initiative in 1922 illustrate this point. In recent years, cultists in states in which the procedure is possible have with increasing frequency resorted to the initiative to gain for themselves advantages that they could not have hoped to gain through the legislature.

In 1938 four initiative proposals were pending which, if adopted, would have jeopardized the public health and welfare in those states. Two of these measures were voted on at the general elections in November 1938. Fortunately neither was adopted.

In Colorado the electorate decisively rejected an initiative measure advanced by the chiropractors, which, while proposed by them primarily to protect themselves from regulation by the legislature, would have weakened the other laws of the state, those relating to the practice of the healing arts, and would have produced chaotic results in the fields of medicine and public health.

The California electorate rejected an initiative measure designed to hinder the use of living dogs for purposes of research This measure proposed to forbid the delivery of any living dog from any pound in the state to any institution of learning or research for purposes of study or instruction.

In Oklahoma an initiative measure was inaugurated which proposed to amend the medical practice act so as to permit hospitals and clinics organized on a mutual or cooperative basis to enter into contracts for hospital or medical services and to prevent the board of medical examiners from disciplining licensed physicians who cooperated in such schemes. The people of the state, however, did not vote on this measure, since at the time of the election an appeal was still pending in the Supreme Court of Oklahoma to determine the regularity of the petition on the basis of which it was proposed to put the initiative measure on the ballot. A bill is now pending (March 22, 1939) in the Oklahoma legislature which, if enacted, will accomplish the results aimed at by the proposed initiative measure.

In Ohio a contemplated chiropractic initiative measure somewhat similar to the Colorado chiropractic initiative was considered, but its proponents never carried it to a point at which the electorate might pass on it. The cultist sponsors of this measure apparently became disheartened shortly after they had submitted it to the attorney general for his approval as to form and never offered petitions with a sufficient number of signatures to entitle the measure to a place on the ballot.

COOPERATION APPRECIATED

The Board of Trustees, on behalf of the Bureau of Legal Medicine and Legislation, expresses appreciation of the cooperation that the Bureau has received from the several state constituent medical associations and component county medical societies and from individual physicians.

Summary

***Federal Legislation.*—Seventy-Fifth Congress: The new Federal Food, Drug and Cosmetic Act was approved by the President June 16, 1938, and the provisions of it relating to new drugs became effective immediately. The other provisions will become effective June 25, 1939. Under the provision of a law enacted by the Seventy-Fifth Congress, osteopaths are given the same status as doctors of medicine under the United States Employees' Compensation Act.**

Seventy-Sixth Congress: The Wagner bill to amend the Social Security Act proposes to give life to the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities. Essentially the bill proposes to provide federal subsidies to induce the several states to undertake new activities and to enlarge activities already under way in certain economic, health and medical service fields named in the bill. The Capper sickness insurance bill contemplates a federal appropriation of $200,000,000 annually to induce the states to develop and maintain systems of health insurance.

Other federal subsidies are proposed in pending bills to enable states to provide hospital beds for tuberculous persons, medical care for transients or nonresidents, financial aid to the disabled, and to improve measures for the diagnosis, treatment and control of cancer.

A survey of narcotic conditions is proposed in a pending measure, and the creation of a National Institute of Epilepsy similar to the National Cancer Institute is contemplated by another bill. Other federal proposals

would authorize federal income tax payers to deduct the amount expended for medical services and would amend the Federal Food, Drug and Cosmetic Act for the relief of a nostrum exploited for the relief of asthma.

A proposal to bring under the old-age and unemployment provisions of the Social Security Act organizations operated exclusively for religious, charitable, scientific, literary or educational purposes has been indefinitely postponed by the House Committee on Ways and Means.

The House Committee on World War Veterans' Legislation has filed a report of its investigation of veterans' hospitals but recommended no increase in beds. The present building program is being carried out with the aid of more than $13,000,000 obtained by the Veterans' Administration from PWA. Proposals continue to be made to Congress for the construction of new hospitals. The injustice that has been done to contract surgeons of the Spanish-American War continues.

Three bills propose the reorganization of the civil administrative agencies of the executive branch of the government but none provide for the establishment of a federal department of health or contain any authorization whereby such a department may be created. A pending bill, however, does propose the establishment of such an executive department with a secretary of health at its head. Another bill proposes the establishment of a United States Medical and Surgical College to be located in the District of Columbia, in which graduates of accredited medical and surgical colleges will be trained for army, navy or public health work.

The incorporation and the legalization of cooperative medical service organizations in the District of Columbia is contemplated by a pending bill.

***State Legislation.*—During the year, as it has done in prior years, the Bureau kept constantly in touch with state legislation of medical interest, promptly advising state associations of legislative proposals that seemed to be of particular importance. Compulsory health insurance proposals were defeated in Massachusetts, New York and Rhode Island, but a commission was created in New York to study the matter and to report back to the legislature. Hospital service corporations were authorized in Kentucky, Louisiana and New Jersey. Other legislation enacted in one or more states related to osteopathy, chiropractic, venereal diseases, narcotic drugs, vaccination, pneumonia control, educational qualifications of applicants for licenses to practice medicine and the causes for which such licenses may be revoked.**

***State Legislation by Initiative.*—Initiative measures in California and Colorado that would have jeopardized the public health and welfare of those states were decisively rejected by the people. Proposed initiative measures in Oklahoma and Ohio did not appear on the ballot.**

Bureau of Health Education

By action of the House of Delegates at the San Francisco session, the name of the Bureau of Health and Public Instruction was changed to Bureau of Health Education. This change was made in the interest of simplicity and to minimize the occurrence of erroneous identifications of the Bureau.

CORRESPONDENCE

The correspondence handled through the Bureau continues to be divided into two main groups, which are called, for convenience, Bureau correspondence and Question and Answer correspondence. The number of letters handled under each heading was: Bureau, 5,474; Question and Answer, 8,220; Radio Audience Mail, 1,145. In Bureau correspondence an increase is noted of 17 per cent over 1937; the 1937 increase over 1936 was 13 per cent.

Question and Answer correspondence in 1938 showed a decrease of 16 per cent, whereas in 1937 it increased 26 per cent over 1936. The 1938 decrease is accounted for by the absence of world's fairs or major expositions. American Medical Association exhibits at such expositions always stimulate correspondence. In 1937 fairs were in progress at San Diego, Dallas and Cleveland. The normal unstimulated correspondence actually showed an increase in 1938 of 4 per cent over 1937.

Radio audience mail can be controlled by the practice of asking or not asking for correspondence in connection with broadcasts. The relatively small volume of audience mail in 1938 is due entirely to the fact that no inducements were offered to the radio audience.

RADIO PROGRAM

The radio program Your Health, in cooperation with the National Broadcasting Company, was broadcast from January 1 through June 15 to complete the first series of special programs for schools. A new series was authorized by the Board of Trustees early in 1938 and was put on the air beginning Oct. 19, 1938. This was based on the same principle as the first series of special programs for junior and senior high schools. Therefore, the radio briefs which had been published in HYGEIA from October 1937 through June 1938 were not republished, but listeners were referred to file copies of HYGEIA for these briefs and only a much abbreviated radio announcement was carried in HYGEIA each month from September through December 1938.

The usefulness of this program to the schools was indicated by the fact that in the latter weeks of summer and the weeks of school openings numerous letters from school principals, health supervisors and science teachers were received asking information as to when the program would be resumed.

Sixty National Broadcasting Company stations regularly broadcast the program.

The Woman's Auxiliary gave its customary cooperation in publicizing the radio program locally, as did many state and county medical societies.

The workbook "Your Health," published by the Johnson Publishing Company to coordinate with the program, was reissued in a 1938-1939 edition practically identical with the edition of 1937-1938.

A broadcast on "Medical Care" was given over the Blue network of the National Broadcasting Company by Dr. Irvin Abell, President of the Association, September 17, during the special session of the House of Delegates.

The Your Health program received a first award from the Institute on Radio in Education at its ninth annual meeting in Columbus, Ohio, in May. At this meeting transcriptions of broadcasts were heard by the Committee on Awards, and the superior quality of the Your Health program was recognized by this award.

The radio library maintained by the Bureau for the use of state and local medical societies and of organizations whose use of the material is approved by local medical societies was called on by such organizations during 1938 for 5,540 scripts, as compared with 4,589 in 1937 and 3,388 in 1936. In 1938, 128 county medical societies used the scripts, as compared with seventy-two in 1937. In 1938, twenty-one state medical associations used the scripts, as compared with thirteen in 1937.

In order to keep the script library up to date, 100 older manuscripts have been dropped and 123 new ones added, making a total of 876 titles, of which 351 are for fifteen minutes, 196 for ten minutes and 329 for five minutes.

Advice and suggestions with regard to outside radio programs were given in sixty-two instances. Among the most important instances of cooperation in 1938 was included the development of a radio broadcast complimentary to the medical profession by the famous radio team of Lum and Abner in which the Bureau was assisted by the executive secretary of the Los Angeles County Medical Association.

A special dramatized broadcast on infantile paralysis was put on the air and transcribed for repeated local use on December 19 in cooperation with the National Broadcasting Company and the National Foundation for Infantile Paralysis, affiliated with the Committee for the Celebration of the President's Birthday.

The evaluation project by the Committee on Evaluation of the Federal Communications Commission, with headquarters at Ohio State University, continued through the year. The evaluation was hampered during the last half of the year by the absence of a Chicago outlet for the program Your Health.

PROTECTION OF RESEARCH

The Bureau has continued its cooperation with the Committee for the Protection of Medical Research under the chairmanship of Dr. Elliott C. Cutler.

The Bureau made its usual donation in May to graduating medical students of complimentary copies of the pamphlet Animals in Research. This was accompanied by a copy of the Bureau of Medical Economic's pamphlet Economics and the Ethics of Medicine. The Animals in Research pamphlets distributed totaled 5,430, and the pamphlets on medical economics 5,342.

COOPERATION WITH GOVERNMENTAL AGENCIES

The Bureau is frequently called on for advice, consultation and cooperation by public agencies, including departments of the federal government, state health and education departments and the health departments, school boards and libraries of municipalities. The states and their subdivisions to which service has been extended are too numerous to list, but the federal departments and the divisions of these which have called on the American Medical Association for service through this Bureau alone are as follows:

United States Department of Labor:
- Children's Bureau.

United States Department of the Interior:
- Office of Indian Affairs, Pine Ridge, S. D.; Window Rock, Ariz.; Ignacio, Calif., and Fort Wingate, N. M.
- Office of Education.
- Bureau of Mines.

United States Department of Commerce:
- Bureau of the Census.
- Accident Prevention Conference.

United States Treasury Department:
- Bureau of the Public Health Service:
  - Surgeon General.
  - Library.
  - Office of Health Education.
  - Advisory Cancer Council.
  - Division of Sanitary Reports and Statistics.
  - National Institute of Health, Division of Zoology.

United States Department of Agriculture:
- Cooperative Extension Work in Agriculture and Home Economics.

The Director of the Bureau continues as a member of the General Advisory Committee on Maternal and Child Health and Crippled Children's Work. Two meetings of the committee were held during 1938, at which the Bureau was represented.

COOPERATION WITH LAY ORGANIZATIONS

National Congress of Parents and Teachers.—There have been no new development in 1938 in the cooperative relationships with the National Congress of Parents and Teachers. There is slow but steady progress toward more widespread adoption of the congress policy for the examination of children in physicians' own offices, such examinations to be paid for by parents where possible, otherwise to be done gratis and in a few instances paid for by local parent-teacher associations. Such payment is usually made on the initiative of the parent-teacher association.

The usual authorization was given by the Board of Trustees for the printing of examination blanks, one half to be paid for at cost by the National Congress of Parents and Teachers, the other half donated by HYGEIA, the Health Magazine.

The Advisory Committee to the Summer Round-Up held its usual meeting in January for the consideration of business relating to the summer round-up, but there was nothing in that meeting worthy of special note.

General Federation of Women's Clubs.—A meeting of the Advisory Committee of the General Federation of Women's Clubs was held Jan. 14, 1939. The clubs continue their work in the child welfare, syphilis education and cancer education programs. The Director of the Bureau was made a member of a special subcommittee to consider further revision of the blanks previously developed for community health surveys by women's clubs, but no conclusion has been reached by the committee. Since this study has attracted little or no attention among women's clubs, it is possible that it may be dropped from the program.

A new president, Mrs. Saidie Orr Dunbar of Portland, Ore., took office and appointed a new chairman for the division of public health of the federation, Mrs. Margaret Wells Wood of the Illinois State Department of Health, Springfield. The Director of the Bureau of Health Education has been reappointed as a member of the advisory committee.

4-H Clubs (National Committee for Boys and Girls Club Work).—In the annual "Healthiest Boy and Healthiest Girl" contests for 1938, four boys and four girls were named instead of just one boy and one girl as has been the case in the past. Director C. W. Warburton of the U. S. Department of Agriculture, Extension Division, has expressed a special interest in arranging contests so that more benefits will accrue to boys and girls who participate but do not win prizes.

Joint Committee on Health Problems in Education.—The year 1938 was marked by two significant developments with relation to the Joint Committee:

(*a*) The announcement at the February meeting by Dr. Thomas D. Wood, chairman of the committee for twenty-six years, of his intention to resign, followed by his actual resignation in July.

(*b*) The appointment, immediately on Dr. Wood's announcement, of a subcommittee to plan for the reorganization of the Joint Committee; these appointments were made by Dr. Charles C. Wilson, Hartford, Conn., vice chairman of the Joint Committee.

Dr. Wilson has functioned as acting chairman of the committee since Dr. Wood's announcement of his resignation. The subcommittee to plan for reorganization consists of Dr. Thurman B. Rice, Indianapolis, chairman; Miss Mary Murphy, Elizabeth McCormick Memorial Fund, Chicago; Miss Anne Whitney, Newton, Mass.; Supt. Willis A. Sutton, Atlanta, and Dr. W. W. Bauer, Chicago.

The deliberations of the committee resulted in agreement on a tentative set of simple principles under which the present Joint Committee will cease to function when these principles have been adopted and will be replaced by a new Joint Committee, smaller in number with more flexible organization and more likely to be responsive to changing needs of changing times.

At the meeting of the Joint Committee at Cleveland in February 1939, the reorganization was completed, providing for a committee of ten members, five from the National Education Association and five from the American Medical Association. Terms of these members are to be as follows: initial terms, respectively, one, two, three, four and five years; subsequent terms, five years each; maximum, two terms in succession. A chairman, vice chairman and secretary-treasurer are to be elected annually by the committee from among its members, using the Hare system of proportional representation. The scope of the committee was defined and an operating code of broad and elastic principles was adopted. The committee is to be strictly a Joint Committee of the two organizations, excluding from its membership all other organizations, but the committee is to draw freely on other organizations for consultant and advisory subcommittees. Consultants and advisers are to have no vote in the Joint Committee. All actions of the committee must be adopted by a vote of four fifths, except mail votes, which must be unanimous. There shall be no quorum at meetings unless there are seven members present, of whom at least three shall be from one of the participating organizations.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A second Symposium on Health Problems in Education, under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology of the American Medical Association, was held in the City Health Building, Civic Center, San Francisco, June 14. This auditorium, seating 300 persons, was believed ample in size, but it was found necessary to turn away more than 300 teachers and physicians who wished to attend the symposium. Another symposium has been arranged for the American Medical Association meeting at St. Louis in May 1939.

American Public Health Association.—The Director of the Bureau continues to serve his five year term, of which two

years remain, as a section councilor of the Section on Health Education of the American Public Health Association.

The American Public Health Association at its Kansas City meeting adopted a resolution which has been published in THE JOURNAL (Nov. 5, 1938, p. 1775) and which did not endorse the so-called health insurance proposals of the plans of the National Health Conference held in Washington in July.

Other Cooperative Relationships. — The Director of the Bureau was appointed by the Executive Committee of the Board of Trustees to represent the American Medical Association on the Section Committee on Minimum Requirements for Plumbing and Standardization of Plumbing Equipment. This committee is sponsored by the American Society of Mechanical Engineers.

Other organizations with which regular cooperative relationships are being maintained include:

State and Territorial Health Authorities (guest representative at meetings).
United States Public Health Service (participation in health conferences on invitation).
United States Department of Commerce (accident prevention conference).
National Organization for Public Health Nursing (consultant).
Committee on Evaluation of School Broadcasts of Federal Communications Commission (Ohio State University).

COOPERATION WITH STATE AND COUNTY SOCIETIES

The Bureau continues as in the past its endeavors to function as a clearing-house for health information and ideas for county and state medical societies and to establish and further cordial relationships between the medical profession and other organizations working for similar purposes.

PERSONAL APPEARANCES

Addresses to assembled audiences by the Director in 1938 numbered ninety-nine and by the Assistant Director fifty-eight, a total of 157. This compares with 125 addresses in 1937. These appearances required 42,859 miles of travel by railroad, automobile and bus. Appearances were made in twenty states.

The number of invitations has steadily increased and it is always necessary to decline a considerable number because of schedule conflicts and for other reasons.

HYGEIA CLIPPING LOAN COLLECTIONS

The clipping loan service of HYGEIA material bound into folders and accompanied by an outline for a proposed speech increased remarkably in 1938, owing largely to the publication in THE JOURNAL of an article "When Doctors Address the Public," by Dr. Paul A. Teschner, March 12, 1938, p. 155B. The total number of loans in 1938 was 895, as compared with 375 in 1937 and 230 in 1936.

BUREAU PUBLICATIONS

The pamphlet publications of the Bureau were maintained as in past years by revising, dropping or adding, as the demand seemed to indicate. New Bureau publications numbered twelve; those revised numbered five.

The use of photographic covers on HYGEIA suggested to the Director of the Bureau that these cover plates could be put to further use by employing them as a basis for posters. These posters were developed with special reference to economy, attractiveness and usefulness in the classroom. Therefore they were printed on lightweight paper so that they could be sold and mailed at a price of 25 cents for eight, including postage.

Material for publication in THE JOURNAL and in HYGEIA has been prepared by the personnel of the Bureau as occasion has demanded.

REVISION OF THE PERIODIC HEALTH EXAMINATION MANUAL

Revision of the Manual of Suggestions for the Conduct of Periodic Examination of Apparently Healthy Persons was authorized by the Board of Trustees and is in progress.

EXHIBITS

The Bureau cooperated, as in former years, with the Bureau of Exhibits in the preparation of exhibit material for use on various occasions, the principal ones being the Golden Gate International Exposition and the New York World's Fair.

Summary

The Bureau handled 5,474 communications from doctors, medical societies and cooperating agencies, 8,220 inquiries from the lay public and 1,145 pieces of radio audience mail. The Bureau broadcast thirty-seven dramatized radio programs in cooperation with the National Broadcasting Company. The radio library furnished scripts to 128 county medical societies and twenty-one state medical associations, distributing a total of 5,540 scripts covering 876 titles. Special radio broadcasts were arranged in connection with the annual session at San Francisco and the special session of the House of Delegates at Chicago. The Bureau cooperated with the Committee for the Protection of Medical Research and distributed 5,430 copies of pamphlets on protection of medical research to senior medical students; these were accompanied by an equal number of pamphlets on medical economics. Cooperation was given to five major departments of the United States government. The Bureau represented the American Medical Association in cooperative projects with the National Congress of Parents and Teachers, the General Federation of Women's Clubs, the National Committee for Boys and Girls 4-H Club Work, the National Education Association, the American Public Health Association, State and Territorial Health Authorities, National Organization for Public Health Nursing and the Federal Communications Commission's Committee on Evaluation of School Broadcasts. Public addresses were given to 157 audiences in twenty states, requiring 42,859 miles of travel; these audiences numbered 45,786 persons. Clipping loan collections from Hygeia were furnished to 895 doctors in forty-six states to aid them in preparing addresses for the public. The Bureau issued twelve new pamphlets and revised five old pamphlets. Eighty-two items were contributed to The Journal and thirty-four to Hygeia. Revision of the periodic health examination blank and manual was begun. The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association was completely reorganized.

Bureau of Medical Economics

A number of phases of medical economics were under consideration during 1938. The study of medical care proceeded throughout the year; reports of the National Health Survey and the text of the National Health Program have been analyzed; assistance has been given to medical societies on the study and preparation of medical service plans; group hospitalization plans have continued to demand study and criticism; data have been assembled for the study of fee schedules, and other subjects such as collection of medical fees, sickness financing, malpractice insurance, workmen's compensation, relations between physicians and hospitals, the preparation and revision of publications of the Bureau and field engagements have consumed the time of the Bureau personnel.

STUDY OF MEDICAL CARE

In compliance with the resolution adopted by the Board of Trustees in December 1937 calling for a study of the need and supply of medical care and in accordance with the suggestions of the Committee on the Study of Medical Care, the Bureau of Medical Economics prepared nine forms to be used by county and state medical societies in the collection of data for such a study of medical care. Two information booklets containing suggestions on the conduct of the study and a special Summary Sheet were also prepared to make possible the collection of somewhat uniform information by the committees appointed by county medical societies to conduct the study. Also a special form was prepared for the use of state medical societies in the collection of information concerning statewide medical facilities. In all, the Study of Medical Care necessitated the preparation and distribution of 280,000 pieces of material.

The Committee on the Study of Medical Care recommended a special study of free services rendered by physicians and dentists throughout the United States. Records of free medical

services were prepared to be kept for one week by physicians and by dentists during each of three periods selected to obtain a representative sample of the services rendered during a year. For the conduct of this special study, 496,000 records were distributed to physicians and dentists.

As of Feb. 28, 1939, 416 county medical societies in thirty-six states have completed the Study of Medical Care in their counties and returned to the Bureau of Medical Economics the Summary Sheets with information obtained in the study. Many of the committees in charge of county studies returned detailed reports based on the findings of the study and including recommendations for the improvements that seemed necessary. In six states the returns are complete for all the counties in the state. Four state medical societies have also returned the special form which contains information regarding statewide arrangements for medical services.

Medical societies in forty-five states and the District of Columbia are participating in the Study of Medical Care, and it is expected that an additional number of medical societies will complete the Study of Medical Care at a later date.

Only two of the three periods to be included in the special study of free medical services have been completed, but as of Feb. 28, 1939, 434 counties have returned approximately 8,000 forms which represent the actual records of free medical services rendered by physicians and dentists. These records are being prepared for machine tabulation on punch cards, and more than 5,000 have been checked and are ready for tabulation. Twelve of the county and state reports have been published in the Organization Section of THE JOURNAL to indicate the nature of the information received and to encourage committees in charge of the Study of Medical Care to prepare complete reports.

MEDICAL SERVICE PLANS

During the past year there has been a noticeable increase in the activities of county and state medical societies in the study and development of medical service plans. The impetus for these activities may have come partly from the distaste on the part of the medical profession to a form of medical practice organized and operated by some nonprofessional agency, either voluntary or governmental, and partly from the encouragement given by the House of Delegates to medical societies to develop for local communities supplementary arrangements for the distribution of medical services according to local requirements and conditions.

The House of Delegates in 1934 established ten principles to assist medical societies in the organization of arrangements to supplement the private practice of medicine. The Study of Medical Care has developed data that in some instances have also brought to the attention of the organized medical profession problems in the distribution of medical services that deserve careful sympathetic consideration. These and other factors, not the least of which is the National Health Program, have focused the attention of both the medical profession and the public on "plans" to facilitate the distribution of medical care.

Interest in Medical Care Plans.—Since the Special Session of the House of Delegates in September 1938 some forty or more medical societies have sought assistance in the study and development of forms of medical service suited to their respective localities.

The growing interest of medical societies and of the public in special arrangements for organizing payments for medical services can be almost directly measured by the increasing number of experiments conducted by state and county medical societies. In 1934, 150 plans for the distribution of medical services were being conducted by medical societies in various communities in the United States. By 1935 this number had grown to 200, by 1936 to 250, by 1937 to 350, and at present the number is in excess of 450.

The existence of these organizational plans for the delivery of medical services is a direct refutation of the assertions that have been made concerning the unwillingness of the medical profession to tolerate change in the arrangements for payment for medical services. As a matter of fact, medical societies throughout the United States have in operation more experiments with new plans for the distribution of medical services than all the proponents of group payment plans have ever proposed.

Prepayment Plans.—The prepayment or group payment medical service plans that have received consideration from medical societies vary extensively in details but can be classified into two main types:

First, medical service plans on a unit service basis whereby an organization is created to collect funds from members and to provide medical services through participating physicians who agree to accept a prorated division of whatever funds are available after expenses have been paid.

Second, medical service plans on a cash indemnity basis, whereby an organization is created to collect funds from members and to pay a designated amount of cash to assist members in meeting their medical bills.

Under the unit service plan a schedule of the number of units to allow for each service is established, and the value of the unit is determined by dividing the amount of money available for medical bills by the number of units of service rendered. Under the cash indemnity plan, benefits are paid according to a listing of benefits which limits the amount that can be paid to the member or on assignment to his physician—the payments do not fix the physician's fees but assist the member to meet his medical bills.

Most of the proposals have contemplated the organization of some unit service plan. The simplicity of this type of arrangement, which entitles members to all necessary medical services with the participating physicians agreeing to divide the funds collected on an equitable basis is most appealing. There has been much experience with this unit system method, most of which would seem to indicate that there are difficulties which must be overcome before satisfactory results can be expected. Probably because of the known difficulties with unit service plans, the House of Delegates, both at the last annual session in San Francisco and at the recent Special Session in Chicago, gave particular encouragement to the development of cash indemnity plans.

A supplementary report, "Organized Payments for Medical Services," which describes practically all the various methods of organizing payments for medical services, contains a detailed discussion of the advantages and disadvantages of cash indemnity and unit service plans. The experience that will be gained under each of these two types of prepayment medical service plans may point the way to future arrangements for medical practice.

GROUP HOSPITALIZATION

Group hospitalization plans have continued to develop rapidly throughout the year 1938. Today there are eighty such plans in operation, with more than two and a half million members enrolled. Proposals for the organization of these plans are also receiving consideration in at least fifty-six communities.

The medical profession has given close attention to the development of group hospitalization plans beginning with the inauguration of the original plan. The first study of these plans was conducted by the Bureau of Medical Economics in 1932, and the criticisms and suggestions outlined in that study and in subsequent studies laid down many of the principles which the actual operation of group hospitalization plans has proved to be of fundamental importance. The consideration that the House of Delegates has given to the progress of group hospitalization plans has been based on sympathetic understanding of the desirability of some method of insurance payment to assist persons to pay hospital bills. At the same time the House of Delegates has evidenced concern over the possible deleterious effect on the practice of medicine in hospitals by an organized method of payment for hospital bills which would result in a lowering of the quality of services rendered to patients or a prostitution of the medical specialties practiced in hospitals.

It is a matter for concern on the part of the medical profession, in connection with these hospital service or group hospital insurance plans, that the inclusion of medical services in the hospital service contracts is being proposed. This feature of group hospitalization contracts has received the serious consideration of the House of Delegates on previous occasions and prompted the preparation of an extensive report, "Group Hospitalization," by the Bureau of Medical Economics, in which the experience of hospital service plans throughout the United States was analyzed. This report pointed out the undesirable effect on medical practice in hospitals when special medical

services such as anesthetic, pathologic and radiologic services are included in a hospital service contract on a service basis.

Policy Established by House of Delegates.—The attitude that has been taken by the House of Delegates toward the inclusion of medical services in group hospitalization contracts can be outlined as follows:

In June 1937 the House of Delegates recommended:

> . . . that the contract benefits provided by group hospitalization insurance should be limited to the room, bed, board and nursing facilities ordinarily provided by hospitals and routine medicines. . . . In regard to certain benefits offered by many hospital insurance plans, combining professional and technical services, the committee is in complete sympathy with those who would make every possible provision to prevent inclusion of any and all types of services involving medical care.

Also in 1937 the House of Delegates adopted the Ten Principles for the guidance of group hospitalization plans which are published on page 247 of the report "Group Hospitalization." The fourth of these Ten Principles states that the provisions in a hospital service contract should be limited exclusively to hospital facilities, which are defined to include "only hospital room accommodations, such as bed, board, operating room, medicines, surgical dressings, and general nursing care."

At the session of the House of Delegates in San Francisco (1938) the fourth of these Ten Principles was extended by the following statement:

> If for any reason it is found desirable or necessary to include special medical services such as anesthesia, radiology, pathology or medical services provided by outpatient departments, these services may be included only on the condition that specified cash payments be made by the hospitalization organization directly to subscribers for the cost of such services.

At the Special Session of the House of Delegates in September 1938 approval was given to the principle of hospital service insurance, provided these plans confine themselves to provision of hospital facilities and do not include any type of medical care.

The House of Delegates has declared that most of the difficulties concerning medical services in group hospitalization contracts can be avoided either by omitting all provisions for medical services on a service basis or by providing cash benefits directly to the subscriber for designated medical services. The first of these arrangements has been put into effect in cities such as St. Louis, Washington, D. C., and Wilmington, Del., where the group hospitalization plans exclude practically all such medical services. The second arrangement has been put into effect in Oakland, Calif., in Pittsburgh and Philadelphia, and in other localities, where the hospital service plans include certain medical services but on a basis which permits the payment of cash benefits directly to the patient or the physician. Such group hospitalization plans have the cooperation of the medical societies in these localities.

The recommendations of the House of Delegates have been concurred in by the action of state and county medical societies and by resolutions adopted by national societies of specialists, all of which have pointed out the undesirability of including special medical services in hospital service contracts on a service basis. It can be accepted, therefore, that the conviction of the medical profession generally is that the inclusion of medical services in a group hospitalization contract on a service basis will have an undesirable effect on the practice of medical specialties in hospitals and on the quality of the service rendered.

Hospitalization Contracts Show Variations.—An analysis of the contracts sold by sixty-three of the group hospitalization plans now in operation indicates that twenty-seven do not include x-ray services, thirty-one do not include pathologic services except for limited routine laboratory examination, and twenty-five do not include anesthesia. A comparison of the membership and financial experience of the plans that sell contracts in accordance with the recommendations of the House of Delegates indicates that a hospital service plan can enroll as many members and operate as successfully as the plans which include special medical services.

Whatever may be the attitude of hospital administrators or physicians concerning the arrangements that should exist between hospitals and physicians practicing in hospitals, it seems that this larger problem should not be confused with the principles that have been established concerning the inclusion of medical services in group hospitalization contracts to be sold by hospital service corporations. These principles specify that special medical services such as anesthetic, pathologic and radiologic services should not be included as benefits in a hospital service contract unless cash payments for these services are made to the subscriber or on assignment to his physician.

A contractual arrangement between the hospital and a hospital service corporation whereby a specified payment is to be made by the corporation to the hospital for each patient day of service, including professional services that are properly performed by physicians, raises many ethical and legal problems. Hospital administrators and physicians are justified in attempting earnestly to prevent the growth of these problems. While a hospital service corporation may contract with hospitals for the use of hospital facilities, it is believed to be undesirable for these corporations to contract with hospitals for the medical services in the hospital.

Practical Application of Principles.—The principles which have been adopted by the House of Delegates of the American Medical Association offer two possible alternatives:

First, that special medical service benefits be entirely omitted by restricting the benefits of the hospital contract exclusively to hospital facilities such as bed and board, use of the operating room, medicines, surgical dressings and general nursing care.

Second, that special medical service benefits may be included in the hospital service contract providing the benefits for such services are payable in cash to the subscriber or on assignment to his physician or hospital.

Both of these alternatives have been put into operation in various localities and either one will permit the organization of a hospital service plan that can have the full support of the medical profession.

At the same time the Committee on Hospital Service and the Council on Hospital Insurance of the American Hospital Association seem to be encouraging the development of plans that include special medical services on a service basis. It appears that the staffs of local hospitals are first induced to support a proposed hospital service plan which includes special medical services on a service basis and afterward an attempt may be made to secure approval of the plan by the local county medical society. The county medical society is then faced with the problem either of disavowing the principles suggested by the American Medical Association and by the state medical society or of disapproving the action taken by members of the hospital staffs. The American Hospital Association at its last annual session approved the extension of hospital care insurance plans to include medical fees in hospital practice when the arrangements are approved by the local county medical society. At a recent conference between representatives of the American Medical Association and the American Hospital Association this problem was frankly discussed.

The recommendation of the House of Delegates with regard to the principle that special medical services on a service basis be entirely excluded from the hospital service contract, or that direct cash benefits be paid for such services, has received official sanction by a considerable number of medical societies. There is need, however, for a more thorough understanding of this recommendation by many physicians, hospital administrators and the public.

This principle takes on added importance in view of the suggestions being made by directors of hospital service corporations that the hospital service contract be extended to include all medical services in the hospital—surgical and general medical services as well as the special medical services of anesthesia, pathology and radiology. The development of medical service plans under the auspices of medical societies or voluntary organizations reemphasizes the necessity for maintaining separate provisions for the physician's services and for hospital facilities.

A joint report of the three national hospital associations has suggested that federal legislation be sought to permit the licensing of hospital service corporations similar to the federal licensing of credit unions. It is contemplated that such federally licensed hospital service corporations would be the proper agencies to enter into contracts with the government for the care of the indigent sick. This proposal also emphasizes the necessity for separate arrangements for the provision of the personal services of physicians.

Apart from the specific principles for group hospitalization plans, the House of Delegates in 1935 adopted the following:

The House of Delegates would again emphasize particularly the necessity for separate provisions for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

RELATIONS BETWEEN PHYSICIANS AND HOSPITALS

The relations of physicians and hospitals concerning medical services for hospitalized patients have been brought to a sharp focus by the development of group hospitalization plans, all-inclusive rate plans and governmental arrangements for hospital care of the indigent which look to the hospital as the source of medical care and tend to subordinate the physician to a status similar to that of an employee of the hospital.

It is suggested that the House of Delegates and state and county medical societies might properly take cognizance of the fact that certain types of group hospitalization plans and other payment arrangements for hospital care may tend to establish relations between physicians and hospitals that are not desirable for the welfare of hospitalized patients or for the furtherance of good medical practice in hospitals.

At the last annual session the House of Delegates recommended that a joint study be made by the Council on Medical Education and Hospitals and the Bureau of Medical Economics to determine the existing relations between hospitals and the physicians practicing therein. This study was to be undertaken with a view toward a clearer definition of the relationships in the departments of anesthesia, radiology, pathology and physical therapy in order that ethical standards may be established for the practice of medicine by physicians in hospitals which would prevent the exploitation of either the public, the hospitals or the physicians.

The results of this study will be reported by the Council on Medical Education and Hospitals. As a part of the study, the Bureau of Medical Economics has made an analysis of schedules obtained from 876 radiologists by the Inter-Society Committee for Radiology concerning the economics of the practice of radiology.

MEDICAL FEE SCHEDULES

The Bureau of Medical Economics, since it was established in 1931, has made an effort to collect fee schedules from county medical societies. During 1934 the Bureau computed minimum and maximum average fees for the United States for 530 items from 384 county schedules which it had in the files at that time. This list of 530 items with average fees was kept in the files of the Bureau where it could be referred to on questions involving medical fees, but at no time has any fee schedule been recommended for adoption by county medical societies.

In November 1937 a concentrated effort was made to secure a more complete and up-to-date record of county fee schedules. A letter was sent to the secretary of every county medical society in the United States requesting a copy of the fee schedule that had been adopted or was being used by the county society at that time. A complete list of the number of letters sent out and of the number of replies and schedules returned by the county society is given in table 1.

At the annual meeting of the House of Delegates of the American Medical Association in San Francisco in June 1938 the following Resolution on Fee Schedules was adopted:

WHEREAS, State and county medical societies have from time to time, on their own initiative or at the request of others claiming a valid or social interest in the cost of medical services to a particular group, established so-called fee bills on which the contracting persons or groups agree to base charges; and

WHEREAS, Such fee bills often set up without due regard to the equitable interest of the various groups concerned furnish an implement through which exploitation is practiced and abuses encouraged; and

WHEREAS, The necessity for or advisability of such schedules has never been considered by the House; and

WHEREAS, Controversy over the application of such schedules is rife, serving to divert the attention of the contracting persons from the central fact—namely, the quality of medical care—thus reflecting unfavorably on the profession and lending comfort to those critics who charge it with the adoption of trade union methods; and

WHEREAS, It has been the unwritten rule, established by a long line of ethical practitioners, both past and present, to adapt charges for medical services to the ability of his patient to pay, untrammeled by fixed community schedules; therefore be it

Resolved, That this device, appearing with increasing frequency, be examined by an appropriate agency of the American Medical Association to the end that the Association may declare itself on certain controversial points, among which are:

(*a*) The advisability of or necessity for fee schedules in the public interest.

(*b*) Their ethical or unethical qualities.

(*c*) Necessity for certain fixed principles to guide constituent units of the Association when and if it is deemed, in the public interest, necessary to adopt such a device, and

(*d*) Whether such schedules, approved by constituent units of the Association, should or should not provide for elasticity so as to permit of adaptation to wage levels, specialized medical services, variations based on differential costs as between urban, semiurban and rural practice and other related considerations.

In June 1938 the Bureau began compiling and tabulating the figures recorded on the county medical societies' fee schedules. At first it was necessary to make a composite list of items included in the 558 county fee schedules. The nomenclature and classifications in the schedules varied greatly. No two schedules were completely alike. Considerable time and work were involved in making a complete list that would include the services on which three or more counties reported fees. Many of the counties reported a very short schedule—a list of the most common services performed by the general practitioner in his daily practice. Others had a very elaborate and detailed list of more than 300 items including many unusual and seldom used tests and operations. In the final list, which includes a total of 606 items, the medical and surgical services are subdivided under ten main headings and twenty-three subheadings. All of the fees have now been trasferred from the county schedules to this uniform list of items and the number of fees reported for each item has been computed.

Table 2 gives a list of the medical and surgical services on which the greatest number of societies reported a fee. This list indicates the type of services on which the majority of the

TABLE 1.—*Number of Requests for County Fee Schedules and the Number of Replies*

State	Number of Requests Sent to County Medical Societies	Number of Schedules Returned	Replied But No Schedule Submitted	No Reply
Alabama	67	13	14	40
Arizona	13	2	2	9
Arkansas	62	15	5	42
California	39	9	10	20
Colorado	28	6	3	19
Connecticut	8	..	5	3
Delaware	3	..	2	1
District of Columbia	1	..	..	1
Florida	33	10	5	18
Georgia	94	13	2	79
Idaho	9	3	..	6
Illinois	93	35	9	49
Indiana	83	71	5	7
Iowa	97	23	6	68
Kansas	67	20	4	43
Kentucky	114	19	3	92
Louisiana	40	5	5	30
Maine	15	1	4	10
Maryland	22	4	2	16
Massachusetts	18	4	3	11
Michigan	54	18	8	28
Minnesota	34	12	3	19
Mississippi	21	2	3	16
Missouri	80	18	9	53
Montana	15	6	1	8
Nebraska	50	12	8	30
Nevada	5	1	..	4
New Hampshire	10	1	1	8
New Jersey	21	6	6	9
New Mexico	14	4	2	8
New York	61	26	8	27
North Carolina	73	29	3	41
North Dakota	13	3	1	9
Ohio	87	19	15	53
Oklahoma	65	16	4	45
Oregon	23	8	2	13
Pennsylvania	60	14	16	30
Rhode Island	6	1	1	4
South Carolina	37	5	3	29
South Dakota	12	3	..	9
Tennessee	59	11	7	41
Texas	131	33	10	88
Utah	9	4	1	4
Vermont	10	1	1	8
Virginia	48	19	4	25
Washington	24	6	3	15
West Virginia	30	5	6	19
Wisconsin	52	19	10	23
Wyoming	11	4	3	4
Total for United States	2,021	559	228	1,234
	100%	28%	11%	61%

county medical societies considered established fees to be practicable. Except for surgical procedures, complement fixation tests for syphilis and postmortem examinations, the list includes only services which the general practitioner might be expected to perform every day under ordinary conditions. The fact that so many county medical societies' schedules do not include

TABLE 2.—*Common Services for Which More That 100 Counties Reported Fees*

Classifications	Number of Counties Reporting These Fees
Home visit	536
Office visit	514
Obstetrics—normal delivery	436
Night visit	412
Mileage	400
Consultation	279
General anesthetic	278
Venereal disease treatments	235
Fractures	228
Urine tests	217
Herniotomy	208
Smallpox immunization	205
Amputations	205
Circumcision	204
Gynecologic operations	182
Appendectomy	172
Physical examinations	168
Prescriptions	167
Tonsillectomy	153
Hypodermic medication	126
Physical examinations for insurance	119
Intravenous medication	117
Complement fixation test for syphilis	107
Surgical assistant's fee	105
Postmortem examinations	100

established fees for the remaining 581 items, which make up the composite list, indicates the difficulty of establishing fees for services for which the amount of time, skill and responsibility required cannot be determined in advance.

Study of Medical Fees to Continue.—The next phase of study, now in progress, is to compile average minimum and maximum fees for each state for every item on which a sufficient number of fees from which to compute an average are reported. Average minimum and maximum fees for the United States will be computed for all the 606 items. These average fees will be used as a basis for a further study on the question of the necessity or desirability of established fee schedules for medical and surgical services. There are many other factors which must be considered in presenting the arguments for and against this question, but to enter into a discussion of fee schedules it is necessary to know the existing average fees in the various states and the geographic and political divisions of the United States. An equitable fee depends not only on the professional skill required and the time consumed but also on costs of living and the economic status of the majority of the people in a given locality. Medical fees also show considerable variation in rural areas as compared to industrial centers. Consequently, average fees for the entire United States would be useful to any particular county society only as a comparison of the difference between the local medical fees and the average fees for the United States. Average fees for a state might be a more practical guide for a county medical society within the particular state if the average fees were derived from figures that are representative of the actual amounts usually charged for medical services in that state.

These average figures will also be useful as a guide in determining equitable fees for medical services under various medical care plans for special economic groups such as the indigent, Farm Security Administration clients and the low income group. At the present time requests have come from more than twenty-five county medical societies that do not have fee schedules or wish to revise their fee schedules for a schedule of average fees which could be used as a guide in setting up or revising a fee schedule.

The completed study of fee schedules, so far as information is available, will be submitted as a supplementary report of this Bureau.

COLLECTING MEDICAL FEES

The Bureau of Medical Economics continues to receive complaints from physicians concerning the practices of commercial collection agencies in the collection of medical accounts. A report "Collecting Medical Fees" which was published serially in THE JOURNAL beginning in May 1938 outlined and discussed the various systems used by commercial collection agencies with particular emphasis on practices that tend to defraud the unwary physician and often deal harshly with his patients. A special study of professional credit and collection bureaus was also included in this report.

During the past year 460 copies of the report "Collecting Medical Fees" were distributed to medical societies, physicians, collection agencies, libraries and lay individuals. Including a previous report on collecting medical fees, a total of 6,200 reports have been distributed within the past six years to assist physicians with their collection problems.

One of the most significant developments in medical economics during recent years has been the organization of credit and collection bureaus by county medical societies or by groups of physicians. This movement toward professional control of agencies for the collection of medical accounts has progressed rapidly during the past five years and symbolizes the effort on the part of physicians to eliminate many of the undesirable features that have arisen because of dissatisfaction with methods used by commercial collection agencies and because of the need for an agency to organize some of the "business" aspects of medical practice.

According to available records there are at least fifty professionally controlled credit and collection bureaus in operation, and twenty-five others are proposed. Reported experiences with the operation of these bureaus indicates that they perform a valuable service for the patients and the physicians in the communities where they were organized.

Inappropriate Collection Methods.—Improper or unsatisfactory collection arrangements are prominent among the reasons which cause medical accounts to have the highest ratio of bad debts of all retail accounts in the United States. The consequent loss of payments amounts to an estimated one-fourth billion dollars annually. An even greater damage to the physician's practice is caused by improper credit and collection practices that lead to dissatisfaction with the use of the sliding scale of fees and sometimes may encourage malpractice suits. Greater attention to the "business" side of medical practice with special regard for extension of credit to patients and billing procedures is not unprofessional or beneath the dignity of the medical profession, particularly when it can be shown that lack of attention to the proper conduct of the business side of medicine results in extensive harm to the delivery of good medical service by threatening to destroy the personal and friendly relations between physicians and their patients.

Familiarity with Collection Methods Essential.—Once again physicians should be urged to familiarize themselves with the proper procedures to follow in the use of a third party agency to collect medical accounts. While complaints continue to be received, there has been an encouraging decrease in the number of complaints from physicians who have been defrauded by unscrupulous collection agencies and methods. Recently the postal authorities convicted the officers of a large collection agency of fraud and it appears that other collection agencies utilizing similar contracts will no longer be allowed to use the mails to transact their business. Legislation in certain states for the licensing of collection agencies is contemplated in the hope of providing at least some regulation of these agencies. The most hopeful possibility, however, is that the individual physician will learn to avoid collection agencies that use methods which almost invariably lead to unfair dealings with his patients and sly handling of his accounts.

SICKNESS FINANCING COMPANIES

The formation of special financing organizations which offer to make available funds with which to finance medical accounts is creating an important financial institution which may introduce new problems in the medical field. In the past, medical societies and physicians have not been in favor of finance plans on the ground that such arrangements do not lower the cost of medical care but instead result in an additional cost to the patient and in many of the arrangements increase costs for the physicians. It has been felt that persons with low incomes whose medical accounts require special arrangements are deserving of a reduction rather than an increase in charges by the addition of interest or other expenses paid to a financing agency.

It is true that patients now have access to a variety of lending agencies such as personal finance companies, Morris Plan and industrial banks, personal loan departments of banks, credit unions, remedial loan societies, pawnbrokers and unlicensed lenders of all types. For example, it was estimated that in 1936 more than $40,000,000 was lent by personal finance companies alone to patients for medical, dental and hospital bills.

The feasibility of developing special finance plans, perhaps under the auspices of medical societies or groups of physicians, will undoubtedly be given wide consideration. Already several medical societies have experimented with a special financing arrangement. The Bureau of Medical Economics has records of forty-five sickness financing plans the majority of which are still privately financed and owned institutions. A thorough study of sickness financing arrangements would seem to be warranted, especially in view of the likelihood of a development of financing arrangements under sponsorship of medical societies.

MALPRACTICE INSURANCE

Within the past few years, considerable changes in policies and rates for malpractice insurance have been made by practically all companies writing this type of insurance. Increasing underwriting losses have caused insurance companies to become concerned over the selection of "malpractice risks." The present unsettled situation in the underwriting of malpractice insurance is due to many possible causes, among which are the increasing complexity of medical practice involving more general use of special apparatus such as x-ray and physical therapy, a resentment on the part of certain patients of efforts of physicians to collect payments for delinquent accounts, critical comments by some physicians and the general attempts which have recently been made to discredit the medical profession. These and other factors have led to an increasing tendency for patients to allege that their physicians are guilty of malpractice.

A question has been raised as to whether there is any relationship between the American Medical Association and insurance companies writing malpractice insurance, apparently because several companies require that an applicant be a member of a medical society. These insurance companies establish their own policies, which, presumably, change with experience. The American Medical Association has not attempted to influence insurance companies in the formulation of their policies pertaining to rates, coverage, type of risks accepted, or any other part of the companies' business.

The Bureau of Medical Economics has made an effort to secure from the companies a statement of their policies in order that intelligent replies might be made to correspondents who inquire about malpractice coverage.

PUBLICATIONS

In addition to the reports already mentioned, two new studies have been published, "Medical Relations Under Workmen's Compensation—Developments since 1930" and "Health Insurance in England," which bring down to date the information in these two important fields of medical economics. The report "Sickness Insurance Not the Remedy" has been rewritten with much additional information, and the report on "Contract Practice" has been revised with new material added that involved a study of nearly a thousand of such plans for which records exist in the Bureau. Other publications that were reprinted during the year were "Critical Analysis of Sickness Insurance," "The Economics and Ethics of Medicine" and "Sickness Insurance Catechism."

Developments and extensions in the medical program of the Farm Security Administration have required examination and analysis of the different arrangements made by the Farm Security Administration with state and county medical societies. Many medical societies, before entering into such agreements, have asked for information, suggestions and copies of the plans used in other states. A full report of the Farm Security Administration plans is included as a chapter in the report "Organized Payment for Medical Services." Likewise medical societies have requested detailed information concerning plans for the care of the indigent. A chapter describing the arrangements for the care of the indigent throughout the United States is also embodied in the report "Organized Payments for Medical Services." A chapter in this report also outlines the developments under the Social Security Act which are of interest to medical societies.

Medical economics abstracts were prepared each week for the Organization Section of THE JOURNAL. In many cases these abstracts require considerable research and statistical work or translation from European publications. Articles on socialized medicine and other subjects in medical economics were also prepared for several nonmedical magazines.

NATIONAL HEALTH PROGRAM

The factual data on which the National Health Program was based were taken largely from the information collected in the National Health Survey. As soon as the reports of the National Health Survey became available, the Bureau prepared analyses of certain parts on which comments could be made without consulting all the basic data.

Likewise, as soon as the text of the National Health Program was issued, an analysis was made for the Board of Trustees and for use of the reference committees of the Special Session of the House of Delegates in September 1938.

These analyses and additional statements bearing on particular portions of the National Health Program were made available to the committee of the House of Delegates which met with government representatives in October and December 1938 to discuss the recommendations of the National Health Program.

DEPARTMENT OF JUSTICE INVESTIGATION

When the Department of Justice investigator visited the Bureau, every assistance was given him to examine all the source files and correspondence bearing on the mission for which he was sent. This assistance went further than the mere compliance with requests to see specific material. Suggestions were made concerning other material which it was thought might be of interest or assistance. All reprints and publications of the Bureau were given to the investigator and he was invited to return at any time, when every possible assistance to examine every document in the Bureau files would be given him. The contact with the investigator was very cordial.

Later, when the subpenas were received for specific material, much time was required to collect from the Bureau files all the material needed to comply with the subpenas. Photostatic copies of the original material sent to the Department of Justice, Washington, D. C., are on file in the Bureau.

OTHER ACTIVITIES

One important portion of the work of the Bureau is the furnishing of information on medical economics subjects which comprise fifty-five main subject classifications with 159 subclassifications. Requests for information on these topics come to the Bureau by letter, telephone, telegram or personal visits from physicians, both as individuals and as officers of medical organizations, from individual lay persons and from administrators of various agencies.

The majority of the written requests have to be answered on an individual basis, which requires considerable research and library work to secure the specific information requested. This is particularly true of requests received from secretaries of committees appointed by medical societies to conduct special studies in various problems of medical economics. Requests are chiefly for information concerning group hospitalization, medical care plans, state medicine, contract practice plans, collection agencies, insurance companies (particularly malpractice insurance), costs of medical care and medical education, income from medical practice, distribution of physicians and hospitals, rural medical services, care of the indigent sick, and medical relations under workmen's compensation.

Representatives from a variety of organizations, but chiefly from state and county medical societies, often visit the Bureau in person for consultation on particular medical economic problems. These consultations have served a distinctly useful purpose in acquainting representatives of the county medical societies with the functions of the Bureau and in making known to representatives of lay organizations that the source files of the Bureau contain much information concerning the medical economic problems in which they are interested, as well as to acquaint the Bureau with the nature of their problems. In a

number of instances the visits from interested persons have developed into valuable contacts with important organizations in other fields, such as public welfare, insurance, foundations, government agencies, workmen's compensation commissions and industry.

On many occasions the Director or his associates are invited to address or confer with state or county medical societies, national organizations such as the American Association of Medical Students, American Hospital Association, American Pharmaceutical Association, American Public Welfare Association, National Association of Retail Druggists, National Conference of Social Workers, National Education Association, United States Children's Bureau, United States Public Health Service, Conference on Rural Medical Care, State and Provincial Health Authorities of North America and local groups such as women's auxiliaries, state hospital associations, women's clubs, public forums, high school clubs, colleges and universities, Y. M. C. A., Rotary, Kiwanis, and Lions clubs, and consumer groups. Engagements with these medical societies and national or local organizations have averaged one a week during the year.

Summary

Study of Medical Care.—Medical societies in forty-five states and the District of Columbia are participating in the Study of Medical Care. Already 416 county medical societies in thirty-six states with the cooperation of other agencies and organizations interested in medical services have completed a study of the need and supply of medical care in their communities.

A special study of free medical services rendered by physicians and dentists throughout the United States has been made by having records of free medical services kept for three representative periods of seven days each.

A supplementary report will summarize the results of the Study of Medical Care and the special study of free medical services.

Medical Service Plans.—Medical societies throughout the country have taken a very active part in the study and development of medical service plans. A supplementary report, "Organized Payments for Medical Services," has been prepared which describes practically all the various methods of organizing payments for medical services.

The prepayment or group payment medical service plans which have received consideration from medical societies can be classified into two main types: (1) unit service plans, which provide medical services through participating physicians who agree to accept a prorated division of whatever funds are available after administrative and other expenses are paid; (2) cash indemnity plans, which provide a designated amount of cash to assist members in meeting their medical bills. Experience gained under each of these types of medical service plans will, no doubt, produce much helpful information.

Group Hospitalization. — Hospital insurance plans organized by hospital administrators and physicians have continued to receive widespread attention. One major problem in connection with these plans is concerned with the question of including or excluding special medical services, such as anesthesia, pathology and radiology. The experience gained in the operation of these plans emphasized the importance of the recommendations of the House of Delegates that such special medical services be omitted from a hospital service contract or included only on the basis that cash benefits be payable directly to the member.

The development of medical service plans raises a further question as to the relation between hospital service plans and other medical services in the hospital —surgical and general medical services. The consensus seems to be that a medical service plan should be kept separate in its organization and administration from a hospital service plan.

Relations Between Physicians and Hospitals.—Various organized arrangements for the payment of medical services in hospitals brought into sharp focus the necessity for establishing a clearer understanding of relationships between the hospital departments of anesthesia, radiology, pathology and physical therapy and physicians practicing in these departments.

Medical Fee Schedules. — An exhaustive survey of county medical society fee schedules has been completed. All the county fee schedules that could be obtained were classified and tabulated into a composite fee table, which includes a total of 606 items and the "average" minimum and maximum fees for each item.

A supplementary report, "Medical Fee Schedules," has been completed in accordance with the request of the House of Delegates that a study be made of the advisability and necessity of fee schedules.

Collecting Medical Fees.—A significant development in medical economics during recent years has been the organization of credit and collection bureaus by county medical societies or by groups of physicians. The movement toward professional control of agencies for the collection of medical accounts has been reported in a special study, "Collecting Medical Fees." This report also outlines and discusses the various systems used by commercial collection agencies and gives particular emphasis to the practices that tend to defraud the unwary physician. Physicians are urged to familiarize themselves with the preferable procedure to follow in the use of a third party agency to collect medical accounts.

Sickness Finance Companies. — Recently interest has been evinced in the development of special medical finance plans under the auspices of medical societies or groups of physicians. Patients now have access to a variety of lending agencies and careful study should be given to the development of financing arrangements under the sponsorship of medical societies.

Malpractice Insurance. — Policy provisions and rates for malpractice insurance have been subjected to considerable changes in the past few years. Increasing underwriting losses have caused insurance companies to become concerned over the selection of malpractice risks. The present unsettled situation in the underwriting of malpractice insurance is due to many causes, not the least of which has been the recent attempts to discredit the medical profession.

Publications.—In addition to the reports already mentioned, two new studies, "Medical Relations Under Workmen's Compensation — Developments since 1930" and "Health Insurance in England," were published. Two new reports, "Sickness Insurance Not the Remedy" and "Contract Practice," have been submitted for publication.

The new report "Organized Payments for Medical Services" will also contain chapters descriptive of Farm Security Administration plans, arrangements for the care of the indigent sick and medical care developments under the Social Security Act.

Articles and abstracts pertaining to medical economic problems were prepared for the Organization Section of The Journal and for some nonmedical magazines.

National Health Program. — Analysis and statements pertaining to the National Health Program and the National Health Survey were prepared for the Board of Trustees and the committee appointed by the House of Delegates to confer and consult with proper federal representatives.

Department of Justice Investigation.—Every possible assistance was given to the investigator from the Department of Justice to examine all the source files and correspondence of the Bureau which might have a bearing on the mission for which he was sent.

Other Activities.—Correspondence, consultations and speaking engagements increased continuously throughout the year but have made possible a wide distribution of information concerning medical economic problems.

Bureau of Investigation

Dr. Paul C. Barton, formerly a member of the administrative personnel of the Council on Pharmacy and Chemistry, assumed the duties of Director of the Bureau of Investigation Nov. 1, 1938.

The services of this Bureau continue to be utilized by physicians and laymen, and many inquiries are received from representatives of organizations that are concerned with the detection and exposure of fraud for the purpose of public protection, as well as from official agencies that are concerned not only with the detection and exposure of fraud but also with the prosecution of impostors. Approximately 10,000 direct inquiries were received by the Bureau in 1938, about 60 per cent of which came from the lay public and about 40 per cent from physicians. It seems to be evident that the Bureau is filling a real need in supplying information, since many inquirers, including busy physicians, take time to write letters of acknowledgment and thanks for the information furnished in response to their inquiries. An increasing number of communications requesting information are received from students and from the members of consumers' study groups. In most instances the material provided by the Bureau for students and for the members of study groups is utilized in the preparation of essays presented before classes, and thus wide distribution is given to the information that is made available through this Bureau.

Many requests for information are received from newspapers, magazines, broadcasting stations and advertising agencies concerning the acceptability of products for which advertising is offered. Most of these requests come from publications, radio station operators and advertising agencies in the Eastern part of the United States and in the Middle West.

The services of the Bureau of Investigation continue to be used by various agencies of the federal government and the utmost possible cooperation is maintained between the Bureau and the Food and Drug Administration, the Federal Trade Commission and the Post Office Department. These governmental agencies provide the Bureau with official releases based on fraud orders, notices of judgment and other orders, and much of the information so secured is published in THE JOURNAL. Cordial cooperative effort is maintained with Better Business Bureaus throughout the United States.

The Bureau has continued the long-established policy of providing physicians, teachers, health officers and civic groups with material to be used for exhibit purposes and for the preparation of public addresses. The amount of such material distributed during the year was approximately the same as in each of several preceding years.

Articles of current interest were prepared by the Bureau for publication in the Association's periodicals during the year, many of which were contributed by Dr. Arthur J. Cramp, who was for many years Director of the Bureau of Investigation.

Bureau of Exhibits

THE SCIENTIFIC EXHIBIT

There were 242 signed applications for space in the Scientific Exhibit at the San Francisco session, of which 161 were accepted, 66 per cent. The Scientific Exhibit occupied a floor area of 27,665 square feet, located in various halls, rooms and corridors of two floors. Because of the somewhat limited space available there was much congestion.

Total Exhibits, 1938.—In addition to 161 exhibits for which there were signed applications, there were two special exhibits on fractures and on anesthesia, and four motion picture booths sponsored by the various sections of the Scientific Assembly. There were 136 exhibits sponsored by the sections, forty-nine of which were accompanied by papers read before the various sections during the week.

Section exhibits	136
Educational group	
National organizations	16
Organized medicine	9
Motion picture booths	4
Special (subsidized) exhibits	2
	167

Exhibits and Registration.—For each exhibit in the Scientific Exhibit, thirty-six Fellows of the Association registered at the General Registration Booth. This was a slightly smaller ratio than last year, as shown in the table below, in spite of the fact that a larger percentage of applications were rejected this year than in former years. The lower figure this year, therefore, is without much significance.

	Total Exhibits	Total Registration	Attendance per Exhibit
Cleveland, 1934	167	6,293	37.7
Atlantic City, 1935	213	8,166	38.3
Kansas City, 1936	176	6,824	38.7
Atlantic City, 1937	254	9,764	38.4
San Francisco, 1938	167	6,034	36.0

Section Exhibits.—The fifteen sections of the Scientific Assembly presented 136 exhibits, an average of nine each, as compared with thirteen each last year. The largest number of exhibits presented by any section were in the Section on Pathology and Physiology with seventeen exhibits and the smallest number the Section on Laryngology, Otology and Rhinology with four exhibits. Following is a comparison of exhibits presented by the various sections for the past several years:

	Kansas City 1936	Atlantic City 1937	San Francisco 1938
Practice of Medicine	21	18	11
Surgery	17	26	16
Obstetrics and Gynecology	6	10	6
Ophthalmology	11	11	8
Laryngology, Otology and Rhinology	5	9	4
Pediatrics	11	9	6
Pharmacology and Therapeutics	7	9	9
Pathology and Physiology	11	17	17
Nervous and Mental Diseases	5	8	7
Dermatology and Syphilology	7	12	11
Preventive Medicine	6	14	5
Urology	7	8	6
Orthopedic Surgery	11	11	16
Gastro-Enterology	12	18	8
Radiology	10	14	6

The Section on Practice of Medicine was represented by Dr. Fred M. Smith, Iowa City, who was also secretary of the section. There were twenty-five applications presented, eleven of which were accepted and one transferred to another section. One exhibit received a Bronze Medal and one a Special Citation. Three of the exhibits were accompanied by papers read before the section.

The Section on Surgery, General and Abdominal, was represented in the Scientific Exhibit by Dr. Grover C. Penberthy, Detroit. There were thirty-two applications, of which sixteen were accepted. In addition to the exhibits, the section presented a motion picture program in an area adjoining the exhibits. Three exhibits received Certificates of Merit and two Honorable Mention. Five of the exhibits were accompanied by papers read before the section.

The Section on Obstetrics and Gynecology was represented by Dr. H. Close Hesseltine, Chicago. There were twelve applications, of which five were accepted and one was transferred from another section. In addition to the exhibits there was a motion picture program presented as a special feature in an area adjoining the exhibit space. One exhibit received Honorable Mention. Two exhibits were accompanied by papers read before the section.

The Section on Ophthalmology was represented by a committee composed of Dr. Georgiana Dvorak Theobald, Oak Park, Ill., chairman, Dr. Dohrmann K. Pischel, San Francisco, and Dr. Derrick Vail, Cincinnati. There were fourteen applications for space, of which eight were accepted. There were no awards made in this section. Five of the exhibits were accompanied by papers read before the section. A very successful motion picture program was run adjacent to the exhibits.

The Section on Laryngology, Otology and Rhinology was represented by Dr. Robert C. Martin, San Francisco. There were seven applications for space, three of which were transferred to other sections, leaving four exhibits to be accepted. One exhibit received an Honorable Mention. Two of the exhibits were accompanied by papers read before the section.

The Section on Pediatrics was represented by Dr. F. Thomas Mitchell, Memphis, Tenn. There were eight applications for space, of which six were accepted. There were no awards made in this section. One exhibit was accompanied by a paper read before the section.

The Section on Pharmacology and Therapeutics was represented by Dr. Wallace M. Yater, Washington, D. C. There were thirteen applications for space, of which nine were accepted. One exhibit received a Gold Medal and one a Certificate of Merit. Four exhibits were accompanied by papers read before the section.

The Section on Pathology and Physiology was represented by Dr. F. W. Konzelmann, Philadelphia. There were twenty-one applications for space, of which sixteen were accepted and one was transferred from another section. Two of the exhibits in this section were awarded medals. Three of the exhibits were accompanied by papers read before the section.

The Section on Nervous and Mental Diseases was represented by Dr. Roland P. Mackay, Chicago. In addition to the exhibits, a motion picture program was presented in an adjoining area. There were twelve applications for space, of which seven were accepted. None of the exhibits received awards. One exhibit was accompanied by a paper read before the section.

The Section on Dermatology and Syphilology was represented by Dr. Clark W. Finnerud, Chicago. There were eighteen applications for space, of which eleven were accepted. The section presented a Symposium on Industrial Dermatoses, which received a Special Citation. There were seven papers presented before the section by exhibitors.

The Section on Preventive and Industrial Medicine and Public Health was represented by Dr. Paul A. Davis, Akron, Ohio. The section had twelve applications for space, of which five were accepted. One of the exhibits received a Silver Medal and one exhibit was accompanied by a paper read before the section.

The Section on Urology was represented by Dr. R. S. Ferguson, New York. There were nine applications for space, of which six were accepted. One exhibit received a Certificate of Merit.

The Section on Orthopedic Surgery was represented by Dr. Norman T. Kirk, San Francisco. The section presented twenty-two applications for space, of which sixteen were accepted. The Committee on Awards presented to exhibits in this section one Silver Medal, two Certificates of Merit and one Honorable Mention. Four of the exhibits were accompanied by papers read before the section.

The Section on Gastro-Enterology and Proctology was represented by Dr. J. A. Bargen, Rochester, Minn. The section had fourteen applications for space, of which eight were accepted. One exhibit received a Certificate of Merit. Four exhibits were accompanied by papers read before the section.

The Section on Radiology was represented by Dr. E. E. Downs, Woodbury, N. J. There were eleven applications of which six were accepted. None of the exhibits received awards, but all six exhibits were accompanied by papers read before the section.

Motion Pictures.—Four sections presented motion picture programs in connection with the exhibits—the Section on Surgery, General and Abdominal, the Section on Obstetrics and Gynecology, the Section on Ophthalmology and the Section on Nervous and Mental Diseases. All the pictures shown were selected with considerable care by the section representatives, the pictures being previewed in some instances. Projectors and operators were furnished by the Association and the programs carried out under the control of the director of the Scientific Exhibit. For the most part the space available for these motion picture programs was too small and crowded, resulting in much congestion. All the pictures attracted large audiences.

Many motion pictures were shown in individual booths by the various exhibitors, who had included part of their evidence in the form of motion pictures. These pictures formed a serious problem in the narrow corridors where the Scientific Exhibit was located.

Special Exhibits.—The Special Exhibit on Fractures was carried on under the official direction of the committee composed of Dr. Kellogg Speed, Chicago, chairman, Dr. Frank D. Dickson, Kansas City, Mo., and Dr. Walter Estell Lee, Philadelphia. More than fifty physicians from various parts of the country assisted with the demonstrations, and a pamphlet describing the exhibit was distributed. Acknowledgment is made to Major General C. R. Reynolds, the Surgeon General, United States Army, Washington, D. C.; Colonel Roger Brooke, M.C., United States Army, Letterman General Hospital, San Francisco; Lieut. Colonel Norman T. Kirk, M.C., United States Army, Letterman General Hospital, San Francisco; Dr. C. H. Chandler, dean of Stanford University School of Medicine, San Francisco, and Mrs. Mitchell and Mrs. McMurray, nurses from the Stanford University Hospital, San Francisco, for the efficient service which they rendered in connection with the fracture exhibit. Appreciation is also expressed to Dr. Carleton Mathewson Jr., local representative in San Francisco for the fracture exhibit, for his excellent cooperation.

The Special Exhibit on Anesthesia was presented for the second time under the auspices of a committee composed of Dr. Ralph M. Waters, Madison, Wis., chairman; Dr. P. J. Hanzlik, San Francisco; Dr. Chauncey D. Leake, San Francisco, and Dr. Philip D. Woodbridge, Boston, assisted by a competent corps of demonstrators. There was a material increase in the exhibit this year over last year. A pamphlet describing the exhibit was distributed during the meeting, for which there has been a persistent call during the ensuing months. The pamphlet has been reprinted and is now available.

Committee on Awards.—The Committee on Awards was composed of Dr. Eben J. Carey, Milwaukee, chairman; Dr. H. C. Bumpus Jr., Pasadena, Calif.; Dr. Dean Lewis, Baltimore; Dr. E. E. Irons, Chicago, and Dr. W. Walter Wasson, Denver. The duties performed by this committee are of a most arduous nature, involving careful study of each separate exhibit and conscientious and qualified judgment of the merits and value of each.

ASSOCIATION EXHIBITS

The demand for exhibits for loan purposes from the headquarters of the Association has increased again this year. At the present time there are forty-two exhibits pertaining to the various departments of the Association or to subjects in which those departments are interested. During the year, exhibit material was sent out on 124 occasions to forty states. Very often two or more exhibits went to one place, greatly increasing the number of items lent.

There were no international expositions or world's fairs during the year in which the Association participated.

MOTION PICTURES

The demand for motion pictures has continued to increase and the Bureau now has seventeen pictures—fourteen for the medical profession and three for the public. There has been no attempt to build up a large film library but rather to supply information concerning films that may be available elsewhere.

Summary

The Scientific Exhibit at the San Francisco session was marked by very large attendance which constantly filled the halls and corridors on both floors of the exhibit. There were 242 applications for space, of which 161 were accepted. The special exhibits on fractures and anesthesia were outstanding successes.

Association exhibits, dealing with the activities of the Association, were sent out on 124 occasions to forty states.

The demand for motion pictures continues to increase. There has been no attempt to build up a large film library; there are seventeen subjects, however, on the film list, which are almost constantly on loan.

Use of Barbituric Acid and Derivative Drugs

At the annual session of the Association held in Atlantic City in 1937 a resolution pertaining to the sale and promiscuous use of barbituric acid derivatives was submitted to the House of Delegates by Dr. H. A. Luce, Michigan.

Information concerning existing legislation for the control of the sale of these products was compiled by the Bureau of Legal Medicine and Legislation. Laws designed to establish control over the sale of barbituric acid and derivative drugs have recently been enacted in Georgia, Tennessee and Washington, and a bill of similar nature has been passed by both houses of

the legislature in Delaware but at the time of the preparation of this report has not been signed by the governor. Bills on the same subject are pending in the legislatures of California, Kansas, Minnesota and New York, but none had been enacted into law at the time this report was prepared. A similar bill failed of enactment in Indiana. Up to this time laws providing for the regulation of the sale and distribution of barbituric acid and its compounds and derivatives have been enacted and are now in effect in nineteen states. In one state a law for the control of the sale of barbiturates was enacted several years ago but was later repealed.

While the Council on Pharmacy and Chemistry had already given attention to this matter, the Board of Trustees requested that body to prepare a scientific statement for publication in THE JOURNAL, and the Council has prepared an exhaustive report.

Committee on American Health Resorts

Pursuant to resolutions adopted by the House of Delegates at the San Francisco Session, the Board of Trustees has appointed the following Committee on American Health Resorts:

Dr. Bernard Fantus, Chairman, Chicago.
Dr. Walter S. McClellan, Saratoga Springs, N. Y.
Dr. Euclid M. Smith, Hot Springs National Park, Ark.
Dr. M. B. Jarman, Hot Springs, Va.
Dr. William P. Holbrook, Tucson, Ariz.

This committee is now engaged in outlining its plans of work and will no doubt submit a report to the Board of Trustees which can be transmitted to the House of Delegates at its next meeting.

Committee on Distinguished Service Award

After the election of Dr. H. H. Shoulders as Speaker of the House of Delegates, it seemed desirable to have some one designated to serve in his place as Chairman of the Committee on Distinguished Service Award, and the Board of Trustees selected Dr. E. L. Henderson of Louisville, Ky., a member of this House of Delegates, to serve in that capacity. The other members of the Committee on Distinguished Service Award are Dr. John W. Amesse, Denver; Dr. Grant C. Madill, Ogdensburg, N. Y.; Dr. J. D. Brook, Grandville, Mich., and Dr. John F. Hassig, Kansas City, Kan.

The Indictment of the Association

An indictment of the American Medical Association, the Medical Society of the District of Columbia, the Harris County Medical Society, which is a component society of the State Medical Association of Texas, certain members of the Medical Society of the District of Columbia, and certain members of the administrative personnel of the American Medical Association was returned by an additional Grand Jury impaneled at the request of the Department of Justice of the United States. This indictment was reproduced in full in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 31, 1938.

Only one member of the official personnel of the American Medical Association appeared before the Grand Jury, and that one appeared only for the purpose of producing material taken from the files of the Association in compliance with the terms of subpenas issued at the instance of the Department of Justice. It required the expenditure of a great deal of time and effort on the part of a rather large number of members of the working personnel in the Association's offices to comply with the demands presented through these subpenas, but a sincere and exhaustive effort was made to make the fullest possible compliance.

The Board of Trustees, in accordance with instructions received from the House of Delegates at its special session held in Chicago Sept. 16 and 17, 1938, has engaged counsel and will exert all possible effort to make proper defense before the courts in which the issues involved may be heard.

Ruling of Bureau of Internal Revenue

The House of Delegates was informed at a previous annual session that the Bureau of Internal Revenue of the federal government had issued a ruling to the effect that the American Medical Association is liable for the payment of taxes under the provisions of certain sections of the revenue laws, and that under this ruling the Association would be classified by the Bureau as a business league rather than as a scientific and educational organization, under which classification the Association had always been placed prior to the issuance of the latest ruling of the Bureau of Internal Revenue.

On authorization of the House of Delegates, the Board of Trustees has appealed for a reversal of this ruling, and its appeal has been pending before the proper officials of the Bureau of Internal Revenue for several months, though at the time of the preparation of this report no decision has been handed down. In the meantime, taxes due under the ruling of the bureau have been paid after careful efforts to estimate fully the amounts due.

Several conferences, participated in by the Association's attorneys and attorneys of the Bureau of Internal Revenue, have been held and at one conference three members of the official personnel of the Association were present and received most courteous consideration at the hands of the government officials present. It is expected that a decision in this matter will be made within the near future.

Miscellaneous Matters

A great many matters that are not covered in this report have received official consideration by the Executive Committee of the Board of Trustees at its monthly meetings and by the Board of Trustees at the regular meetings of this body. To discuss all such matters fully would require the presentation of a report of such length as to make it burdensome. However, the Board of Trustees is prepared to submit to the House of Delegates any information that may be desired and that is available to the Board.

Respectfully submitted.

ARTHUR W. BOOTH, Chairman.
AUSTIN A. HAYDEN, Secretary
ROGER I. LEE.
ALLEN H. BUNCE.
RALPH A. FENTON.
JAMES R. BLOSS.
THOMAS S. CULLEN.
R. L. SENSENICH.
CHARLES B. WRIGHT.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Report of the Committee on Scientific Research for 1938

The committee has followed its policy to support by small grants promising individual research in various fields of medical interest. During the year seventy-three applications have been considered and forty-five grants have been made. In all cases the money has been turned over to the financial officer of the institution in which the grantee works, with the understanding that it would be subject to requisitions by the grantee and that an accurate account of the expenses would be kept. Practically complete results of work under twenty-nine grants have been published or are in course of publication. The results under eighteen grants prior to 1938 are being prepared for publication; in the case of forty-three grants prior to 1938 active work is still in progress, but in several cases reports on results have been published. During the year unexpended balances from grants amounting to $86.57 have been refunded (see financial statement for 1938).

Financial Statement for 1938

Balance, Jan. 1, 1938	$ 4,161.19	
Appropriation for 1938	13,750.00	
Refund, grant 369	35.00	
Refund, grant 370	2.89	
Refund, grant 398	48.68	
		$17,997.76

The committee believes that its work should be continued and ventures to recommend that the same appropriation be made for 1939 as for 1938; namely, $12,500 for grants in aid of medical research and $1,200 for expenses of the committee.

The financial statement for 1938 is presented; also brief accounts of grants pending at the end of 1937 and a list of grants made in 1938.

Respectfully submitted.

COMMITTEE ON SCIENTIFIC RESEARCH OF THE AMERICAN MEDICAL ASSOCIATION.
LUDVIG HEKTOEN, Chicago, Chairman.
Term expires, 1941.
N. W. JONES, Portland, Ore.
Term expires, 1939.
MARTIN H. FISCHER, Cincinnati.
Term expires, 1940.
C. C. BASS, New Orleans.
Term expires, 1942.
JOHN J. MORTON, Rochester, N. Y.
Term expires, 1943.

GRANTS AND EXPENSES PAID IN 1938

Grant 484, William Antopol	$ 250.00	
Grant 485, Erwin Chargaff	400.00	
Grant 486, Ben Vidgoff	300.00	
Grant 487, Felix Saunders	250.00	
Grant 488, L. R. Dragstedt and G. M. Dack	600.00	
Grant 489, Alexander S. Wiener	200.00	
Grant 490, Peter Heinbecker	500.00	
Grant 491, Charles G. Johnston	660.00	
Grant 492, Solomon Strouse and B. O. Raulston	500.00	
Grant 493, George M. Curtis	600.00	
Grant 494, Catharine Macfarlane	480.00	
Grant 495, Lincoln Opper and Barnett Sure	600.00	
Grant 496, Samuel Soskin	500.00	
Grant 497, Albert P. Krueger	300.00	
Grant 498, Henry Laurens	351.50	
Grant 499, Robert W. Virtue	365.00	
Grant 500, Moore E. Mills and Francis D. Gunn	300.00	
Grant 501, Arthur H. Smith	200.00	
Grant 502, Charles P. Sheldon	31.25	
Grant 503, R. C. Robb	800.00	
Grant 504, Wallace M. Yater	500.00	
Grant 505, Elizabeth S. Russell	250.00	
Grant 506, Harry Sobotka	150.00	
Grant 507, Joseph H. Roe	500.00	
Grant 508, Louis N. Katz	250.00	
Grant 509, Roe E. Remington	400.00	
Grant 510, Erma A. Smith	150.00	
Grant 511, Charles W. Turner	500.00	
Grant 512, Barnes Woodhall	350.00	
Grant 513, John S. Lawrence	350.00	
Grant 514, Samuel R. M. Reynolds	200.00	
Grant 515, Robert R. Sealock	400.00	
Grant 516, Charles O. Warren	300.00	
Grant 517, Irving J. Wolman	170.00	
Grant 518, Harold D. West	100.00	
Grant 519, D. B. Phemister and Harwell Wilson	400.00	
Grant 520, H. E. Carter	250.00	
Grant 521, Rucker Cleveland	400.00	
Grant 522, Ludwig A. Emge	500.00	
Grant 523, Frederick A. Fender	150.00	
Grant 524, Ernest Spiegel	300.00	
Grant 525, A. R. Buchanan	400.00	
Grant 526, Charles F. Code	400.00	
Grant 527, Alexander Levy	300.00	
Grant 528, Frank Co Tui	150.00	
Clerical expense	600.00	
Committee expense	304.60	
Printing and supplies	17.54	
		$16,929.89
Balance on hand		$ 1,067.87

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

NEW GRANTS—1938

Grant 484: William Antopol, Newark Beth Israel Hospital, Newark, N. J., $250, Shwartzman phenomenon.

Grant 485: Erwin Chargaff, Columbia University, $400, chemistry and physiology of obstructive jaundice.

Grant 486: Ben Vidgoff, University of Oregon Medical School, $300, inhibitory hormone of the germinal epithelial cells of the testis and its effect on the rat prostate.

Grant 487: Felix Saunders, University of Chicago, $250, isolation of growth factors.

Grant 488: Lester R. Dragstedt and G. M. Dack, University of Chicago, $600, relationship of Bacterium necrophorum to ulcerative colitis.

Grant 489: Alexander S. Wiener, Jewish Hospital of Brooklyn, $200, agglutinogens in human blood and studies on Kline test.

Grant 490: Peter Heinbecker, Washington University School of Medicine, $500, pituitary regulation of water balance in the dog.

Grant 491: Charles G. Johnston, Wayne University College of Medicine, Detroit, $660, intestinal obstruction.

Grant 492: Solomon Strouse and B. O. Raulston, University of Southern California, $500, sodium-potassium relationship in diabetes.

Grant 493: George M. Curtis, Ohio State University, $600, iodine and calcium metabolism in thyroid disease.

Grant 494: Catharine Macfarlane, Woman's Medical College of Pennsylvania, $480, value of periodic pelvic examination in detecting cancer of the uterus.

Grant 495: Lincoln Opper and Barnett Sure, University of Arkansas, $600, relation of vascular disease to avitaminosis in the rat.

Grant 496: Samuel Soskin, Michael Reese Hospital, Chicago, $500, laboratory tests for endocrine dysfunction.

Grant 497: Albert P. Krueger, University of California, $300, bacteriophage.

Grant 498: Henry Laurens, Tulane University, $351.50, lowering of arterial pressure by carbon arc radiation.

Grant 499: Robert W. Virtue, University of Denver, $365, formation of bile acids.

Grant 500: Moore E. Mills and Francis D. Gunn, Northwestern University Medical School, $300, experimental pulmonary tuberculosis in dogs.

Grant 501: Arthur H. Smith, Wayne University College of Medicine, Detroit, $200, serum proteins in relation to blood volume.

Grant 502: Charles P. Sheldon, Harvard University, $31.25, respiration in pregnancy and labor.

Grant 503: R. C. Robb, Syracuse University College of Medicine, $800, diseases in twins.

Grant 504: Wallace M. Yater, Georgetown University Medical School, $500, histopathology of "bundle branch" block.

Grant 505: Elizabeth S. Russell, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., $250, genetics of tumors in the fruit fly.

Grant 506: Harry Sobotka, Mount Sinai Hospital, New York, $150, monomolecular layers of physically active substances.

Grant 507: Joseph H. Roe, George Washington University, $500, vitamin C content of plant, animal and tumor tissue.

Grant 508: Louis N. Katz, Michael Reese Hospital, Chicago, $250, factors influencing activities of the heart.

Grant 509: Roe E. Remington, Medical College of the State of South Carolina, $400, iodine deficiency in the rat.

Grant 510: Erma A. Smith, Iowa State College, $150, influence of various substances on gastrointestinal motility.

Grant 511: Charles W. Turner, University of Missouri, $500, relation of thyrotropic hormone of anterior pituitary to pregnancy and lactation.

Grant 512: Barnes Woodhall, Duke University Hospital, $350, reactions to implanted Shope rabbit papilloma by cerebral tissue.

Grant 513: John S. Lawrence, University of Rochester, $350, transmissible agranulocytosis in the cat.

Grant 514: Samuel R. M. Reynolds, Long Island College of Medicine, $200, action of oestrin on small blood vessels.

Grant 515: Robert R. Sealock, University of Rochester, $400, relation of metabolism of melanin pigment precursors to vitamin C requirements.

Grant 516: Charles O. Warren Jr., Cornell University Medical College, $300, metabolism of bone marrow.

Grant 517: Irving J. Wolman, Children's Hospital of Philadelphia, $170, lipoid pneumonia.

Grant 518: Harold D. West, Meharry Medical College, $100, synthesis of *dl*-threonine.

Grant 519: D. B. Phemister and Harwell Wilson, University of Chicago, $400, mechanism of blood pressure in sympathectomized dogs.

Grant 520: H. E. Carter, University of Illinois, $250, betaines of aminohydroxy acids.

Grant 521: Rucker Cleveland, Vanderbilt University, $400, cytology of endometrium.

Grant 522: Ludwig A. Emge, Stanford University School of Medicine, $500, relation of sex hormones to tumor growth.

Grant 523: Frederick A. Fender, Stanford University School of Medicine, $150, development of device for direct neurologic stimulation.

Grant 524: Ernest Spiegel, Temple University, $300, physicochemical factors influencing the excitability of the central nervous system.

Grant 525: A. R. Buchanan, University of Mississippi, $400, vestibular mechanism.

Grant 526: Charles F. Code, University of Minnesota, $400, metabolism of histamine.

Grant 527: Alexander Levy, University of Oregon Medical School, $300, occlusion of the coronary arteries.

Grant 528: Frank Co Tui, New York University, $150, relation between Shwartzman agent and pyrogen.

STATE OF WORK UNDER PREVIOUS GRANTS

1. COMPLETED DURING THE YEAR

Grant 174, 1930: Alfred R. Roos, College of Medical Evangelists, Loma Linda, Calif., $1,455, hay fever pollens in the Southwest. The reports and maps describing the results of work on the different groups of plants will be published by the Department of Agriculture of the state of California.

Grant 277, 1933: Gustav Zechel, University of Illinois College of Medicine, $260, study of growing malignant cells by moving photomicrographs. Zechel, Gustav, and Morgenster, O.: A Timing Device for Talking Motion Pictures, *Science* **81**: 23, 1935. Zechel, Gustav: A Simple Method of Obtaining Blood from the Rat in the Preparation of Plasma for Tissue Culture, *Arch. f. exper. Zellforsch.* **18**: 142, 1935. Zechel, Gustav: An Improved Tissue Culture Chamber, *Science* **87**: 264, 1938.

Grant 343, 1934: John Guttman, Post-Graduate Medical School and Hospital, $400, relation between electrical disturbances in cochlea and the sensation of hearing. Guttman, John, and Barrera, S. E.: The Electrical Potentials of the Cochlea and Auditory Nerve in Relation to Hearing, *Am. J. Physiol.* **120**: 666, 1937.

Grant 348, 1935: Phillips Thygeson, State University of Iowa, $400, trachoma and "inclusion virus" disease of the genito-urinary tract. Thygeson, Phillips, and Mengert, W. F.: The Virus of Inclusion Conjunctivitis, *Arch. Ophth.* **15:** 377, 1936. Thygeson, Phillips; Proctor, Francis I., and Richards, Polk: Etiologic Significance of the Elementary Body in Trachoma, *Am. J. Ophth.* **18:** 811, 1935. Thygeson, Phillips, and Richards, Polk: Nature of the Filtrable Agent of Trachoma, *Arch. Ophth.* **20:** 569, 1938. Thygeson, Phillips: The Cultivation of Human Conjunctival and Corneal Epithelium in Vitro, *Am. J. Ophth.*, to be published.

Grant 356, 1935: Jay C. Davis, University of Minnesota, $500, coronary flow and lesions of the aortic valves. See grant 463, 1937. Davis, J. C.: An Analysis of the Factors Involved in the Changes in Coronary Flow in Aortic Stenosis and Regurgitation, *Am. J. Physiol.* **123:** 50, 1938.

Grant 365, 1935: Ludwig A. Emge, Stanford University School of Medicine, $500, effect of castration on malignant tumors. Emge, Ludwig A., and Murphy, Kathleen M.: Effect of Rapidly Repeated Pregnancies on Transplantable Mammary Rat Adenofibromas, *Proc. Soc. Exper. Biol. & Med.* **37:** 620, 1938. Emge, Ludwig A.; Murphy, Kathleen M., and Schilling, Walter: Effect of Theelin on Transplantable Mammary Rat Adenofibroma, *ibid.* **38:** 21, 1938. Emge, Ludwig A.; Schilling, Walter, and Wulff, L. M. R.: Effect of Pregnancy on the Growth of Rat Sarcoma, *ibid.*, p. 338. Emge, Ludwig A.: Sarcomatous Degeneration of Transplantable Mammary Adenofibroma of the White Rat, *Arch. Path.* **26:** 429, 1938. Murphy, Kathleen M.; Schilling, Walter, and Emge, Ludwig A.: Effect of Prolonged Theelin Injections on Transplantable Mammary Adenofibroma, *Proc. Soc. Exper. Biol. & Med.* **39:** 298, 1938. Emge, Ludwig A., and others: The Influence of Long-Continued Injections of Estrogen on Mammary Tissue, *Am. J. Obst. & Gynec.* **36:** 750, 1938.

Grant 370, 1935: Richard L. Crouch, University of Missouri, $500, connections of diencephalon (refund, $2.89). Crouch, Richard L., and Thompson, John K.: The Efferent Fibers of the Thalamus of Macacus Rhesus, *J. Comp. Neurol.* **69:** 255, 1938. Crouch, Richard L., and Thompson, John K.: Termination of the Brachium Conjunctivum in the Thalamus of the Macaque Monkey, *ibid.*, p. 449. Other papers in course of publication.

Grant 378, 1935: Wallace M. Yater, Georgetown University Hospital, Washington, D. C., histopathologic basis of "bundle branch" block. See grant 504, 1938. Yater, Wallace M.: The Morbid Anatomy of Bundle-Branch Block, *M. Ann. District of Columbia* **7:** 1 and 54, 1938. Yater, Wallace M.: Pathogenesis of Bundle Branch Block, *Arch. Int. Med.* **62:** 1, 1938.

Grant 380, 1935: N. W. Popoff, Highland Hospital, Rochester, N. Y., $600, arteriovenous anastomosis. Popoff, Nicholas W.: Epithelial Functional Rejuvenation, *Arch. Path.*, to be published.

Grant 402, 1936: C. H. Thienes and L. T. Samuels, University of Southern California, $500, carbohydrate metabolism as influenced by the hypophysis. See grant 453, 1937. Samuels, L. T., and others: Glycogen Formation After Alanine Administration in Adrenalectomized Animals, *Proc. Soc. Exper. Biol. & Med.* **35:** 538, 1937. Ball, H. A., and Samuels, L. T.: The Effect of Cortical Extract on the Glucose Tolerance of Adrenalectomized Rats, *ibid.*, p. 633. Samuels, L. T.; Schott, H. F., and Ball, Howard A.: Carbohydrate Metabolism Studies in Hypophysectomized Rats: II. The Relation of the Hypophysis and Adrenal Cortex to the Removal of Excess Glucose from the Blood of Rats, *Am. J. Physiol.* **120:** 649, 1937.

Grant 418, 1936: Frank W. Allen, University of California, $200, nucleotide of the red corpuscles. See grant 464, 1937. Eiler, John J., and Allen, Frank W.: The Catabolism of the Purine Nucleotides: I. The Relation to Glycolysis in the Blood of the Rabbit, *J. Biol. Chem.* **123:** 655, 1938.

Grant 427, 1936: Helen S. Mitchell, Massachusetts State College, $300, nutritional cataract in rats. Mitchell, Helen S., and Cook, Gladys M.: Influence of Protein or Cystine Intake on Cataract-Producing Action of Galactose, *Proc. Soc. Exper. Biol. & Med.* **36:** 806, 1937. Mitchell Helen S.; Merriam, Oreana A., and Cook, Gladys M.: The Relation of Ingested Carbohydrate to the Type and Amount of Blood and Urine Sugar and to the Incidence of Cataract in Rats, *J. Nutrition* **13:** 501, 1937. Mitchell, Helen S., and Cook, Gladys M.: Galactose Cataract in Rats, *Arch. Ophth.* **15:** 22, 1938.

Grant 428, 1936: D. B. Phemister, K. Grimson and H. Wilson, University of Chicago, $400, effect of sympathectomy on blood pressure in dogs. See grant 476, 1937. Grimson, Keith S.; Wilson, Harwell, and Phemister, Dallas B.: The Early and Remote Effects of Total and Partial Paravertebral Sympathectomy on Blood Pressure, *Ann. Surg.* **106:** 801, 1937.

Grant 430, 1936: S. W. Ranson, Northwestern University Medical School, $315, fever producing agents. Ranson, S. W., Jr.: Fever Induced by the Intravenous Injection of Typhoid-Paratyphoid Vaccine, *Arch. Int. Med.* **61:** 285, 1938. Other papers in course of publication.

Grant 433, 1936: Frederick Lemere, Eastern State Hospital, Medical Lake, Wash., $500, Berger brain rhythms in psychotic patients. Lemere, Frederick: Effects of Electroencephalogram of Various Agents Used in Treating Schizophrenia, *J. Neurophysiol.* **1:** 590, 1938.

Grant 435, 1936: Warren O. Nelson, Wayne University College of Medicine, Detroit, $300, effect of synthetic androgenic substances. See grant 481, 1937. Nelson, Warren O., and Merckel, Charles G.: Effects of Androgenic Substances in the Female Rat, *Proc. Soc. Exper. Biol. & Med.* **36:** 823, 1937. Nelson, Warren O., and Merckel, Charles G.: Maintenance of Spermatogenesis in Testis of the Hypophysectomized Rat with Sterol Derivatives, *ibid.*, p. 825. Nelson, Warren O., and Hickman, Jane: Effect of Oestrone on Hypophyses and Reproductive Organs of Thyroidectomized Rats, *ibid.*, p. 828. Nelson, Warren O.: Some Factors Involved in the Control of the Gametogenic and Endocrine Functions of the Testis, *Cold Spring Harbor Symposia on Quantitative Biology* **5:** 123, 1937. Nelson, W. O., and Merckel, C. E.: Maintenance of Spermatogenesis in Hypophysectomized Mice with Androgenic Substances, *Proc. Soc. Exper. Biol. & Med.* **38:** 737, 1938.

Grant 436, 1936: Albert P. Krueger, University of California, $300, nature of bacteriophage. See grant 497, 1938. Krueger, A. P., and Mundell, J. H.: Effect of Phage on Electrokinetic Potential of Susceptible Cells, *Proc. Soc. Exper. Biol. & Med.* **36:** 317, 1937. Krueger, A. P.: The Mechanism of Bacteriophage Production, *Science* **86:** 379, 1937. Scribner, E. J., and Krueger, A. P.: The Effect of NaCl on the Phage-Bacterium Reaction, *J. Physiol.* **21:** 1, 1937. Krueger, Albert P., and Fong, Jacob: The Relationship Between Bacterial Growth and Phage Production, *ibid.*, p. 137. Krueger, A. P., and Strietmann, W. L.: Effect of Sodium Sulfate on the Phage-Bacterium Reaction, *J. Gen. Physiol.*, to be published. Krueger, A. P., and Mundell, J. H.: Demonstration of Phage Precursor in the Bacterial Cell, *Science*, to be published.

Grant 438, 1937: Irving Graef, New York University, $300, pulmonary reactions to lipids and mineral oils. Graef Irving; Kaufmann, William, and Kaplan, Leo: Experimental Studies of Tissue Reactions to Lipids: I. The Formation of Acid-Fast Membranes Around Certain Oils and Waxes, *Arch. Path.* **26:** 914, 1938. Other papers in course of publication.

Grant 439, 1937: Moore A. Mills, Northwestern University Medical School, $300, experimental pulmonary tuberculosis in the dog. See grant 500, 1938. Mills, Moore A., and Colwell, Charlotte A.: Cutaneous Reactivity to Tuberculin in the Dog, *Proc. Soc. Exper. Biol. & Med.* **37:** 470, 1937. Mills, Moore A.; Gunn, Francis D., and Barth, E. E.: Experimental Pulmonary Tuberculosis in the Dog, *J. Bact.* **35:** 453, 1938.

Grant 440, 1937: M. M. Wintrobe, Johns Hopkins University, $200, red corpuscles. Wintrobe, Maxwell M.; Mitchell, D. M., and Kolb, L. C.: Sensory Neuron Degeneration in Vitamin Deficiency, *J. Exper. Med.* **68:** 207, 1938. Wintrobe, Maxwell M.: Experiments with Young Pigs on an Artificial Diet, to be published.

Grant 446, 1937: Samuel Soskin, Michael Reese Hospital, Chicago, $500, hormone assay of blood and urine in endocrine dysfunction. See grant 496, 1938. Freed, S. C.; Mesirow, S. D., and Soskin, Samuel: On the Composite Nature of the Estrus Phenomenon, *Endocrinology* **21:** 731, 1937. Freed, S. C., and Soskin, Samuel: Cyclic Inhibitory Influence of the Rat's Ovary on the Uterine Response to Estrin, *Proc. Soc. Exper. Biol. & Med.* **38:** 391, 1938.

Grant 454, 1937: George M. Curtis, Ohio State University, $600, iodine and calcium balance in thyroid disease. See grant 493, 1938. Curtis, George M., and Puppel, Italo D.: The Iodine Metabolism in Exophthalmic Goiter, *Ann. Surg.* **108:** 574, 1938. Puppel, Italo D., and Curtis, George M.: The Iodine Balance in Exophthalmic Goiter, *Arch. Path.* **26:** 1093, 1938.

Grant 457, 1937: James B. Hamilton, Albany Medical College, $450, testicular descent by administration of male hormone. Hamilton, James B.: The Effect of Male Hormone upon the Descent of the Testes, *Anat. Rec.* **70:** 533, 1938. Hamilton, James B., and Hubert, Gilbert: Effect of Synthetic Male Hormone Substance on Descent of Testicles in Human Cryptorchidism, *Proc. Soc. Exper. Biol. & Med.* **39:** 4, 1938.

Grant 459, 1937: John S. Lawrence, Strong Memorial Hospital, Rochester, N. Y., $450, antiserum for white blood cells. See grant 513, 1938. Lawrence, J. S., and Syverton, J. T.: Spontaneous Agranulocytosis in the Cat, *Proc. Soc. Exper. Biol. & Med.* **38:** 914, 1938. Lawrence, John S.; Pearse, Herman E., and Mider, G. B.: The Effect of Experimental Neutropenia on the Healing of Wounds, *Arch. Path.*, to be published.

Grant, 461, 1937: Roe E. Remington, Medical College of the State of South Carolina, $400, quantitative effect of iodine deficiency in the rat. See grant 509, 1938. Remington, Roe E.: Effect of Chloride on the Thyroid Gland, *Proc. Soc. Exper. Biol. & Med.* **37:** 652, 1938. Remington, Roe E., and Remington, John W.: Effect of Enhanced Iodine Intake on Growth and on the Thyroid Glands of Normal and Goitrous Rats, *J. Nutrition* **15:** 539, 1938. Remington, Roe E.: Does Fat in the Diet Affect the Thyroid, *ibid.*, to be published. Harris, Philip L., and Remington, Roe E.: The Effect of Yeast and of Thiamin on the Production of Low Iodine Goiter, *ibid.*, to be published.

Grant 468, 1937: Valy Menkin, Harvard Medical School, $300, mechanism of inflammation. Menkin, Valy: Studies on Inflammation: XIV. Isolation of the Factor Concerned with Increased Capillary Permeability in Injury, *J. Exper. Med.* **67:** 129, 1938. Menkin, Valy: Studies on Inflammation: XV. Concerning the Mechanism of Cell Migration, *ibid.*, p. 145. Menkin, Valy: Studies on Inflammation: XVI. On the Formation of a Chemotactic Substance by Enzymatic Action, ibid., p. 153. Menkin, Valy: Mechanism of Inflammation, *Arch. Path.* **24:** 65, 1938. Menkin, Valy: The Role of Inflammation in Immunity, *Physiol. Rev.* **18:**366, 1938. Menkin, Valy: Studies on Inflammation: XVII. Direct Effect of Changes in the Hydrogen Ion Concentration on Leukocytes, *Arch. Path.*, to be published.

Grant 470, 1937: Peter Heinbecker, Washington University School of Medicine, $350, pituitary regulation of water exchange and effect of diet on dextrose tolerance and insulin response in dogs. See grant 490, 1938. White, H. L., and Heinbecker, Peter: Observations on Creatinine and Urea Clearances, on Responses to Water Ingestion and on Concentrating Power of Kidneys in Normal Diabetes Insipidus and Hypophysectomized Dogs, *Am. J. Physiol.* **123:** 566, 1938.

Grant 475, 1937: Joseph T. King, University of Minnesota, $375, physiology and sulfanilamide. King, Joseph T.: The Effect of Sulfanilamide on Blood Leukocytes, *Am. J. Physiol.* **123:** 119, 1938. King, Joseph T.; Henschel, Austin F., and Green, Beryl S.: Influence of Prontosil Soluble on Beta Hemolytic Streptococci Growing in Tissue Culture Media, *Proc. Soc. Exper. Biol. & Med.* **38:** 810, 1938. King, Joseph T.; Green, Beryl S., and Henschel, Austin F.: Response of Leukocytes to Colonies of Streptococci Growing in Tissue-Culture Media, *ibid.*, p. 812.

Grant 476: D. B. Phemister and Keith Grimson, University of Chicago, $400, effect of sympathectomy in dogs. See grants 428, 1936, and 519, 1938.

2. INCOMPLETE

A. Work under the grant completed, account rendered of expenses but results not published fully:

Grant 286, 1933: F. H. Pike, Columbia University, $600, the effects of successive experimental lesions of the nervous system.

Grant 308, 1933: John L. Ulrich, Johns Hopkins University, $250, the reflex system in the cat. See grant 372, 1935.

Grant 309, 1933: Carroll L. Birch, University of Illinois School of Medicine, $300, assay of urine for sex hormone of the anterior pituitary.

Grant 367, 1935: Robert Gault and A. C. Ivy, American Institute for the Deaf-Blind, Evanston, Ill., $600, mechanical stimulation of the vibrotactile organs. See grant 412, 1936.

Grant 379, 1935: Victor C. Myers (Donald E. Bowman), Western Reserve Medical School, $650, chemical test for pregnancy.

Grant 382, 1935: L. Goodman, A. J. Geiger and L. Claiborn, Yale University, $250, antianemic principle.

Grant 398, 1936: George A. Emerson, West Virginia University, Morgantown, $175, metabolic products of sympathomimetic amines (refund, $48.68).

Grant 401, 1936: W. T. Dawson, University of Texas, Galveston, $200, toxicity of cardiac glucosides.

Grant 407, 1936: Ralph I. Dorfman, Louisiana State University, $250, estrogenic substance in human urine and other estrogenic compounds.

Grant 412, 1936: Robert H. Gault and A. C. Ivy, American Institute for Deaf-Blind, Evanston, Ill., $400, stimulation of vibrotactile organs by mechanical vibrations. See grant 367, 1935.

Grant 416, 1936: Jean Broadhurst, Teachers College, Columbia University, $200, inclusion bodies in the female genital area.

Grant 431, 1936: Benjamin Harrow, College of the City of New York, $200, purification of the hyperglycemic factor in urine.

Grant 447, 1937: R. C. Herrin, University of Wisconsin, $400, urea clearance.

Grant 448, 1937: Warren H. Cole, University of Illinois College of Medicine, $500, cholesterol tolerance as an index of hyperthyroidism and study of excretory function of the liver.

Grant 452, 1937: G. Albin Matson, Montana State University, Missoula, $100, antigenic properties of certain chemical substances.

Grant 465, 1937: Fred L. Humoller, Loyola University School of Medicine, Chicago, $300, toxic principles in culture fluids of Bacterium enteritidis.

Grant 469, 1937: Joseph Krafka Jr., University of Georgia School of Medicine, $370, elastometric measurements on smooth muscle and connective tissue. Krafka, Joseph, Jr.: Comparative Study of the Histophysics of the Aorta, *Am. J. Physiol.*, to be published.

Grant 471, 1937: Timothy Leary, Office of Medical Examiner, Boston, $500, early atherosclerotic processes and relation of cholesterol to neoplastic growth.

Grant 493, 1938: George M. Curtis, Ohio State University, $600, iodine and calcium metabolism in thyroid disease. See grant 454, 1937.

B. ACTIVE WORK STILL IN PROGRESS

Grant 254, 1932: J. Lisle Williams, Rush Medical College, Chicago, $200, decreased dextrose tolerance in acute infectious diseases.

Grant 372, 1935: John L. Ulrich, Johns Hopkins University, $450, cerebral functions in the action of antagonistic muscles. See grant 308, 1933.

Grant 310, 1934: Lay Martin, Johns Hopkins University, $150, study of gastric juice. See grant 462, 1937.

Grant 324, 1934: William deB. MacNider, University of North Carolina, $285, study of artificial circulation in the kidney.

Grant 337, 1934: James L. O'Leary, Washington University, $245, Loven reflexes. Bishop, G. H., and O'Leary, James: Pathways Through the Sympathetic Nervous System in the Bullfrog, *J. Neurophysiol.* **1:** 442, 1938.

Grant 344, 1934: Paul L. Day and W. C. Langston, University of Arkansas School of Medicine, $300, effect of withdrawal of vitamin G from diet of monkeys. Shukers, Carroll F.; Langston, William C., and Day, Paul L.: The Normal Blood Picture of the Young Rhesus Monkey, *Folia haemat.* **60:** 416, 1938. Day, Paul L.; Langston, William C., and Darby, William J.: Failure of Nicotinic Acid to Prevent Nutritional Cytopenia in the Monkey, *Proc. Soc. Exper. Biol. & Med.* **38:** 860, 1938. Langston, William C.; Darby, William J.; Shukers, Carroll F., and Day, Paul L.: Nutritional Cytopenia (Vitamin M Deficiency) in the Monkey, *J. Exper. Med.* **68:** 923, 1938.

Grant 350, 1935: Frederic A. Gibbs, Harvard University School of Medicine, $100, fiber system in the cat's brain concerned in convulsions. Gibbs, Erna Leonhardt, and Gibbs, Frederic Andrews: A Purring Center in the Cat's Brain, *J. Comp. Neurol.* **64:** 209, 1936.

Grant 355, 1935: Royall M. Calder, San Antonio, Texas, $150, mechanism of pneumococcic inflammation.

Grant 388, 1935: Tracy J. Putnam, Boston City Hospital, Boston, $150, effect of low voltage current on nervous sytem. Alexander, Leo: Clinical and Neuropathological Aspects of Electrical Injuries, *J. Indust. Hyg. & Toxicol.* **20:** 191, 1938. Alexander, Leo: Electrical Injuries to Central Nervous System, *M. Clin. North America* **22:** 663, 1938.

Grant 397, 1936: R. F. Hanzal, Western Reserve University, $150, source of endogenous uric acid and the effects of methylated xanthines on its secretion.

Grant 410, 1936: H. E. Eggers, University of Nebraska, $200, effect of tetra-methyl-arsonium gluconate on human cancer.

Grant 413, 1936: Philip Levine, Newark Beth Israel Hospital, Newark, N. J., $350, bacteriophage action in the dysentery group. Levine, Philip, and Perlstein, David: Phage-Specific Heat-Labile Factors in B. Dysenteriae Sonne, *Proc. Soc. Exper. Biol. & Med.* **36:** 295, 1937.

Grant 415, 1936: Gordon H. Scott, Washington University, St. Louis, $300, lead and aluminum in cerebrospinal fluid. Scott, Gordon H., and McMillen, J. Howard: Spectrographic Analyses of Human Spinal Fluid, *Proc. Soc. Exper. Biol. & Med.* **35:** 287, 1936. McMillen, J. Howard, and Scott, Gordon H.: Spectrographic Studies of Lead in Human Blood, *ibid.*, p. 364.

Grant 420, 1936: Arthur Knudson, Albany Medical College, $400, synthesis of cholesterol in the animal body.

Grant 423, 1936: Alfred Gilman, Yale University, $300, physiology of the antidiuretic hormone of the posterior pituitary. Gilman, Alfred, and Goodman, Louis: Secretory Response of the Posterior Pituitary to the Need for Water Conservation, *J. Physiol.* **90:** 113, 1937.

Grant 434, 1936: Wilbert H. McGaw, Western Reserve University, $500, sound conduction in fractured bones.

Grant 441, 1937: Edward S. West and G. E. Burget, University of Oregon Medical School, $350, diuretic action and chemical metabolism of sorbitol.

Grant 442, 1937: S. J. Crowe, Johns Hopkins University, $480, physiology of hearing.

Grant 443, 1937: Ernest Carroll Faust, Tulane University, $300, epidemiology of trichinosis in New Orleans. Sawitz, Willi: Are Postmortem Statistics on Trichinosis Valid for the Living Population? *Am. J. Pub. Health* **27:** 1023, 1937. Sawitz, Willi: Studies on Trichinella Spiralis in the New Orleans Area, *Arch. Path.*, to be published.

Grant 444, 1937: George Herrmann, University of Texas, Galveston, $300, chemistry of the heart muscle. Herrmann, George, and Erhard, Peter: Total Creatinine, Phosphates, Calcium and Potassium in Normal and Infarcted Myocardium of the Dog, *Proc. Soc. Exper. Biol. & Med.* **38:** 35, 1938.

Grant 445, 1937: Paul M. Levin, Johns Hopkins University, $250, cerebral efferent tracts in primates. Levin, Paul M.: A Nervous Structure in the Pineal Body of the Monkey, *J. Comp. Neurol.* **68:** 405, 1938. Levin, Paul M., and Bradford, F. Keith: The Exact Origin of the Corticospinal Tract in the Monkey, *ibid.*, p. 411.

Grant 449, 1937: Charles W. Turner, University of Missouri, $250, pituitary hormones. See grant 511, 1938.

Grant 451, 1937: Frank Co Tui, New York University, $200, Schwartzman phenomenon and pyrogenic reaction. See grant 528, 1938.

Grant 453, 1937: L. T. Samuels and C. H. Thienes, University of Southern California, $300, hypophysis in metabolism of carbohydrate fat and metabolism. See grant 402, 1936.

Grant 455, 1937: Elizabeth S. Russell, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., $225, genetics of tumors in the fruit fly. See grant 505, 1938.

Grant 456, 1937: Ira A. Manville, University of Oregon Medical School, $500, relation of degenerative changes in connective tissue to glycuronic metabolism.

Grant 458, 1937: Orthello R. Langworthy, Johns Hopkins University, $350, effect of ovulation and pregnancy on smooth muscle of urinary bladder. Langworthy, O. R., and Brack, C. B.: The Effect of Pregnancy and Corpus Luteum on Vesical Muscle, *Am. J. Obst. & Gynec.*, to be published.

Grant 460, 1937: M. G. Seelig, Barnard Free Skin and Cancer Hospital, St. Louis, $250, carcinogenicity of heterocyclic hydrocarbons.

Grant 462, 1937: Lay Martin, Johns Hopkins University, $200, gastric juice. See grant 310, 1934.

Grant 463, 1937: Jay Conger Davis, Minneapolis, $600, action of certain drugs on the coronary arteries. See grant 356, 1935.

Grant 464, 1937: Frank W. Allen, University of California, $200, relation of nucleotide fraction of red corpuscles to glycolysis. See grant 418, 1936.

Grant 466, 1937: G. Louis Weller Jr., George Washington University, $275, effect of sodium pyruvate and other substances on vitamin B deficiency.

Grant 467, 1937: B. O. Barnes, Rush Medical College, $300, extract of adrenals.

Grant 472, 1937: Margaret Lasker, Yonkers, N. Y., $200, incidence of pentosuria and fructosuria.

Grant 473, 1937: Roy H. Turner, Tulane University, $400, physiology of blood vessels in man.

Grant 474, 1937: Marion Fay, Woman's Medical College of Pennsylvania, $275, biochemistry of strontium.

Grant 477, 1937: Irving J. Wolman, University of Pennsylvania, $335, lipoid pneumonia. See grant 517, 1938.

Grant 478, 1937: Martin Silberberg, Washington University School of Medicine, $600, influence of hormones on bone growth. Silberberg, Martin, and Silberberg, Ruth: Influence of Cattle Anterior Pituitary Extract on Endochrondal Ossification in Young Ovariectomized Pigs, *Proc. Soc. Exper. Biol. & Med.* **37:** 446, 1938.

Grant 479, 1937: Tracy J. Putnam, Boston City Hospital, $200, injuries to the cervical cord.

Grant 480, 1937: Amy L. Daniels, State University of Iowa, $250, relation of fluorine to physiologic function.

Grant 481, 1937: Warren O. Nelson, Wayne University College of Medicine, Detroit, $200, synthetic androgenic substances. See grant 435, 1936.

Grant 482, 1937: Warren O. Nelson, Wayne University College of Medicine, Detroit, $400, effect of thymus gland on the growth of rats. Janes, Ralph G., and Segaloff, Albert: Growth and Metamorphosis of Anuran Larvae on Thymus Extracts, *Proc. Soc. Exper. Biol. & Med.* **39:** 172, 1938.

Grant 483, 1937: J. M. Johlin, Vanderbilt University School of Medicine, $250, attenuation of toxins by interfacial adsorption. Johlin, J. M.: Attenuation of Toxins by Interfacial Adsorption, *Proc. Soc. Exper. Biol. & Med.* **38:** 568, 1938.

3. NO RESULTS PUBLISHED

Grant 386, 1935: E. V. McCollum, Johns Hopkins University, $150, adaptation of the eyes to subdued light and its relation to vitamin A (refund, $19.65).

Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year 1938 the Committee issued thirty-seven new grants. A detailed list of these grants, together with a list of publications during 1938, and of unexpired grants made before Jan. 1, 1938, will be found in the appendix to this report.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1938:

1. The Effect of Supplementary Lysine, Methionine and Cystine on the Production of Fatty Livers by High Fat Diets Containing Gliadin, Helen F. Tucker and Henry C. Eckstein: *J. Biol. Chem.* **126:** 117 (Nov.) 1938.

2. The Effect of Sodium Amytal, Sodium Barbital and Nembutal on the Electrocardiogram, Roberta Hafkesbring and Winona MacCalmont: *J. Pharmacol. & Exper. Therap.* **64:** 43 (Sept.) 1938.

3. Clinical Excretion of Bismuth: V. Excretion of Sobisminol and of Some Other Bismuth Preparations for Oral Administration, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *Arch. Dermat. & Syph.* **37:** 993 (June) 1938.

4. Bismuth Studies: V. The Bismuth Absorption from the Site of Injection in Dogs, Torald Sollmann and Katharine Henderson: *Am. J. Syph., Gonor. & Ven. Dis.* **22:** 286 (May) 1938.

5. Clinical Excretion of Bismuth: VII. The Autopsy Distribution of Bismuth in Patients After Clinical Bismuth Treatment, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *Am. J. Syph., Gonor. & Ven. Dis.* **22:** 555 (Sept.) 1938.

6. Bismuth Studies: VIII. Bismuth Distribution in Dogs Following Intramuscular Injection of a Single Dose of Various Bismuth Preparations, Torald Sollmann and Katharine Henderson: *Am. J. Syph., Gonor. & Ven. Dis.* **22:** 739 (Nov.) 1938.

7. Combination Courses of Bismuth Administration, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *J. A. M. A.* **111:** 2175 (Dec. 10) 1938.

8. The Effect of Prontosil and Related Compounds upon the Chemotropism of Leukocytes, Dale Rex Coman: *Am. J. M. Sc.* **196:** 273 (Aug.) 1938.

9. Studies in Chemotropism: Source of Substances Attracting Polymorphonuclear Leukocytes to Bacteria, Harold M. Dixon and Morton McCutcheon: *Proc. Soc. Exper. Biol. & Med.* **38:** 378 (April) 1938.

10. The Action of Histidine on the Gastrointestinal Tract, Louis S. Goodman and Philip A. Bearg: *Am. J. Digest. Dis.* **5:** 117 (April) 1938.

11. The Action of Excess Na, Ca and K on the Coronary Vessels, L. N. Katz and E. Lindner: *Am. J. Physiol.* **124:** 155 (Oct.) 1938.

12. Effects of Various Drugs on the Coronary Circulation of the Denervated Isolated Heart of the Dog and Cat: I. Observations on Epinephrine, Acetylcholine, Acetyl-β-Methylcholine, Nitroglycerin, Sodium Nitrite, Pitressin and Histamine, L. N. Katz, E. Lindner, W. Weinstein, D. I. Abramson and K. Jochim: *Arch. internat. de pharmacodyn. et de thérap.* **49:** 400 (Aug. 31) 1938.

13. The Distribution of the Coronary Blood Flow, L. N. Katz, K. Jochim and W. Weinstein: *Am. J. Physiol.* **122:** 252 (April) 1938.

14. Further Studies on the Pulse Wave in the Aorta and Its Branches, Philip Dow and W. F. Hamilton: *Am. J. Physiol.* **123:** 54 (July) 1938.

15. Blood Pressure Values in Street Dogs, W. F. Hamilton, E. R. Pund, A. W. Simpson, Jr., G. M. Colson and H. W. Coleman: *Am. J. Physiol.* **123:** 88 (July) 1938.

16. Pulmonary Arterial, Venous and Differential Pressure in the Unanesthetized Dog, R. A. Woodbury, W. F. Hamilton and Elkin Vogt: *Am. J. Physiol.* **123:** 220 (July) 1938.

17. The Rate of Utilization of Vitamin A and Carotene by Normal and Diabetic Dogs, Elaine P. Ralli and Arthur C. Pariente: *Am. J. Physiol.* **123:** 166 (July) 1938.

18. Relation Between Size of Dose and Lipotropic Effect of Choline Chloride in Mice, Mary Scott Welch and Arnold DeM. Welch: *Proc. Soc. Exper. Biol. & Med.* **39:** 5 (Oct.) 1938.

19. Lipotropic Action of Certain Compounds Related to Choline Chloride, Arnold DeM. Welch and Mary Scott Welch: *Proc. Soc. Exper. Biol. & Med.* **39:** 7 (Oct.) 1938.

20. The Chemical Nature and Nomenclature of Choline Derivatives, Arnold DeM. Welch: *Science* **88:** 333 (Oct. 7) 1938.

21. A New Method for Determination of Iodine in Five Cubic Centimeters of Blood or Other Biological Material, J. F. McClendon, A. Calvin Bratton, Ralph V. White and William C. Foster: *J. Biol. Chem.* **123:** 699 (May) 1938.

22. Determination of "Hormone Iodine" in 5 Cc. Blood, J. F. McClendon and William Foster: *Proc. Soc. Exper. Biol. & Med.* **39:** 230 (Nov.) 1938.

23. Determination of Iodine in Drinking Water, Urine and Substances Containing Only About 1,000 Times as Much Organic Matter as Iodine, A. C. Bratton, J. F. McClendon, William Foster and Ralph White. *Indust. & Engin. Chem.* **10:** 600 (Oct. 15) 1938.

24. Changes With Age in the Cardiac Output in Adult Men, William Hall Lewis Jr.: *Am. J. Physiol.* **121:** 517 (Feb.) 1938.

25. Experimental Infection in the Mouse Produced by Intratracheal Inoculation with Hemophilus Pertussis, William L. Bradford: *Am. J. Path.* **14:** 377 (May) 1938.

26. An Attempt to Increase Resistance to Pertussis in Newborn Infants by Immunizing Their Mothers During Pregnancy, John A. Lichty Jr., Betty Slavin and William L. Bradford: *J. Clin. Investigation* **17:** 613 (Sept.) 1938.

27. The Reaction of the Epiphysial Cartilage in Normal and Rachitic Rats, J. A. Pierce: *J. Biol. Chem.* **124:** 115 (June) 1938.

28. Pathologic Effects of Elixir of Sulfanilamide (Diethylene Glycol) Poisoning, E. M. K. Geiling and Paul R. Cannon: *J. A. M. A.* **111:** 919 (Sept. 3) 1938.

29. Analysis of the Circulatory Actions of Ethylnorsuprarenin, W. M. Cameron, J. M. Crismon, L. J. Whitsell and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **62:** 318 (March) 1938.

30. Further Evidences on the Nature of the Vasomotor Actions of Ethylnorsuprarenin, W. M. Cameron, L. J. Whitsell, J. M. Crismon and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **63:** 340 (July) 1938.

31. Action of Sympathomimetic Amines on the Heart-Lung Preparation, J. M. Crismon and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **64:** 190 (Oct.) 1938.

32. Protective Effects of $CaCl_2$ Against Procaine Convulsions in Guinea Pigs, R. Beutner and G. P. Miley: *Proc. Soc. Exper. Biol. & Med.* **38:** 279 (March) 1938.

33. A Further Evaluation of Artificial Pneumothorax in Lobar Pneumonia, Francis G. Blake: *J. A. M. A.* **111:** 581 (Aug. 13) 1938.

34. The Effectiveness of Therapeutic Measures After Poisoning with Sublethal and Lethal Dosages of Barbital in the Rabbit, O. W. Barlow: *J. Lab. & Clin. Med.* **23:** 601 (March) 1938.

35. The Relative Activity of Various Purified Products Obtained from American Grown Hashish, R. P. Walton, L. F. Martin and J. H. Keller: *J. Pharmacol. & Exper. Therap.* **62:** 239 (Feb.) 1938.

36. The Effect of Benzedrine Sulfate on the Emptying Time of the Human Stomach, E. J. Van Liere and C. K. Sleeth: *J. Pharmacol. & Exper. Therap.* **62:** 111 (Jan.) 1938.

37. A Comparative Study of the Effects of Various Anesthetic Agents on the Emptying Time of the Stomach, C. K. Sleeth and E. J. Van Liere: *J. Pharmacol. & Exper Therap.* **63:** 65 (May) 1938.

38. Studies on Inflammation: XIV. Isolation of the Factor Concerned with Increased Capillary Permeability in Injury, Valy Menkin: *J. Exper. Med.* **67:** 129 (Jan.) 1938.

39. Studies on Inflammation: XV. Concerning the Mechanism of Cell Migration, Valy Menkin: *J. Exper. Med.* **67:** 145 (Jan.) 1938.

40. Studies on Inflammation: XVI. On the Formation of a Chemotactic Substance by Enzymatic Action, Valy Menkin: *J. Exper. Med.* **67:** 153 (Jan.) 1938.

41. The Role of Inflammation in Immunity, Valy Menkin: *Physiol. Rev.* **18:** 366 (July) 1938.

During 1938 the following grants were issued:

Grant 337: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy, $150, to investigate the relation of sex differences to the action of certain drugs.

Grant 338: Torald Sollmann, dean and professor of pharmacology and Materia Medica, Western Reserve University School of Medicine, and Joseph Seifter, Western Reserve University School of Medicine, $250, to investigate the action of certain antimony and arsenic compounds.

Grant 339: Katharine Henderson, Department of Pharmacology, Western Reserve University School of Medicine, $300, to investigate bismuth preparations.

Grant 340: A. R. McIntyre, professor of physiology and pharmacology, University of Nebraska College of Medicine, $100, to investigate the effects of the digitaloid bodies on the metabolism of dextrose by the cardiac musculature.

Grant 341: Maurice Rosenthal, formerly instructor in pathology, Long Island College of Medicine, $200, to investigate radium poisoning.

Grant 342: W. L. Bradford, associate professor of pediatrics, University of Rochester School of Medicine, $300, to investigate pertussis.

Grant 343: Morton McCutcheon, associate professor of pathology, University of Pennsylvania School of Medicine, $150, to investigate chemotaxis, especially of leukocytes.

Grant 344: John C. Krantz Jr., professor of pharmacology, University of Maryland School of Medicine, $250, to investigate the alkyl nitrites and their use in angina pectoris.

Grant 345: M. L. Tainter, professor of pharmacology, Stanford University School of Medicine, $250, to investigate sympathomimetic amines.

Grant 346: A. S. Marrazzi, Department of Pharmacology and Therapeutics, New York University College of Medicine, $200, to investigate the actions of epinephrine, ephedrine and other members of the sympathomimetic group on sympathetic ganglions.

Grant 347: Reinhard Beutner, professor of pharmacology Hahnemann Medical College, $80, to investigate the toxicity and detoxification of procaine.

Grant 348: G. O. Broun, professor of internal medicine, St. Louis University School of Medicine, $250, to investigate the prevention and treatment of atherosclerosis.

Grant 349: Garnett Cheney, associate clinical professor of medicine, Stanford University School of Medicine, $250, to investigate vitamin K deficiency in chick hemophilia.

Grant 350: James T. Culbertson, assistant professor of bacteriology, Columbia University College of Physicians and Surgeons, $300, to investigate sulfanilamide.

Grant 351: Eugene B. Ferris, assistant professor of medicine, University of Cincinnati College of Medicine, $200, to investigate the administration of human serum.

Grant 352: Harold D. Green, assistant professor of physiology, Western Reserve University School of Medicine, $250, to investigate the effects of drugs on coronary vessels.

Grant 353: W. F. Hamilton, professor pharmacology and physiology, University of Georgia School of Medicine, $125, to investigate vasomotor response of unanesthetized animals.

Grant 354: Hebbel Hoff, assistant professor of physiology; Alexander Winkler, instructor in medicine, and Paul K. Smith, instructor in pharmacology and toxicology, University of Georgia School of Medicine, $150, to investigate the effect of calcium, magnesium and potassium on the dog heart.

Grant 355: Peter K. Knoefel, associate professor of pharmacology, University of Louisville School of Medicine, $150, to investigate the action of amines, of the epinephrine series and of related substances on the central nervous system.

Grant 356: John B. Lagen, research associate in medicine, University of California Medical School, $150, to investigate the potassium and sodium ions in the blood of asthmatic patients and in anxiety states.

Grant 357: William R. Lyons, assistant professor of anatomy, University of California Medical School, $250, the standardization of lactogenic hormone.

Grant 358: R. J. Main, associate professor of physiology and pharmacology, Medical College of Virginia, $100, to investigate the effects of epinephrine and benzedrine on alveolar carbon dioxide in man.

Grant 359: F. C. McLean, professor of pathology and physiology, University of Chicago, $125, to investigate the effects of the growth hormone of the anterior pituitary lobe on the growth of long bones.

Grant 360: F. C. McLean, professor of pathology and physiology, University of Chicago, $125, to investigate the mode of action of dihydrotachysterol (A. T. 10).

Grant 361: S. Morgulis, professor of biochemistry, University of Nebraska College of Medicine, $100, to investigate the relationship between muscular dystrophy and gonadal atrophy.

Grant 362: James M. Orten, assistant professor of physiologic chemistry, Wayne University College of Medicine, $150, to investigate the effect of copper and certain other inorganic salts on the hypoglycemic activity of insulin.

Grant 363: Louis A. Toth, Department of Physiology, Tulane University of Louisiana School of Medicine, $160, to investigate the influence of low oxygen on urine secretion.

Grant 364: Arnold De M. Welch, Department of Pharmacology, Washington University School of Medicine, $300, to investigate the lipotropic action of choline chloride.

Grant 365: Harold W. Werner, assistant professor of physiology and pharmacology, University of North Dakota Medical School, $250 to investigate the effects of stimulants on rabbits depressed with ethyl alcohol.

Grant 366: George W. Paff, Department of Anatomy, Long Island College of Medicine, $75, to investigate the effect of digitalis on the heart.

Grant 367: Simon Benson, dean of pharmacy, Ferris Institute, $100, to investigate the therapeutic effects of skin counterirritants.

Grant 368: Abraham White, Department of Physiological Chemistry, Yale University School of Medicine, $200, to investigate the lactogenic substance isolated in the pituitary.

Grant 369: J. M. Dille, Department of Pharmacology, University of Washington College of Pharmacy, $100, to investigate the action of certain depressant drugs.

Grant 370: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy, $250, to investigate the possible effect of aging on the strength of digitalis preparations.

Grant 371: H. N. Cole, clinical professor of dermatology and syphilology, Western Reserve University School of Medicine, $75, to investigate arsphenamine dermatitis.

Grant 372: Charles Weiss, associate professor of research medicine, University of California Medical School, $200, to investigate the immunology of staphylococcic infections.

Grant 373: Morris Rosenfeld, associate in pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine, $400, to investigate the hormone of the posterior pituitary gland (an ultracentrifugal study).

The following grants were issued before Jan. 1, 1938. In some cases the grant has expired and an unexpended balance remains or the work is not yet completed or not yet published:

Grant 102: C. W. Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, $250, to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia.

Grant 119: Nicholas Kopeloff, research associate in bacteriology, New York State Psychiatric Institute and Hospital, $100, to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies.

Grant 164: E. L. Jackson, associate professor of pharmacology, Emory University School of Medicine, $200, to investigate the antagonism between sodium barbital and insulin.

Grant 201: George R. Cowgill, associate professor of physiologic chemistry, Yale University, Sterling Hall of Medicine, $250, to investigate vitamin B in relation to morphine addiction.

Grant 221: John G. Reinhold, Department of Public Health, Philadelphia General Hospital, $250, to investigate the action of aminoacetic acid (glycine) in progressive muscular dystrophy.

Grant 222: Eugene U. Still, formerly assistant professor of physiology, University of Chicago, $250, to investigate the changes in the metabolism of the pancreas.

Grant 223: Clinton H. Thienes, professor of pharmacology, and Lawrence E. Detrick, Department of Pharmacology, University of Southern California School of Medicine, $200, to investigate withdrawal phenomena in morphine addicted animals.

Grant 232: George R. Cowgill, associate professor of physiologic chemistry, Yale University School of Medicine, $250, to investigate the heart in vitamin B deficiency.

Grant 236: C. W. Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, $100, to investigate the pharmacology of the so-called specific coronary dilator drugs.

Grant 238: Roy R. Kracke, professor of pathology, Emory University School of Medicine, $250, to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits.

Grant 248: Fred C. Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate the male sex hormone.

Grant 249: J. Percy Baumberger, associate professor of physiology, Stanford University Department of Physiology, $200, to investigate the occurrence and oxidation reduction potential of pigments in tumor cells.

Grant 251: Bernard Fantus, professor of therapeutics, University of Illinois College of Medicine, $100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin.

Grant 261: Robert P. Walton, professor of pharmacology, University of Mississippi School of Medicine, $100, to investigate the absorption of drugs through the oral mucosa.

Grant 263: H. A. Shoemaker, associate professor of biochemistry and pharmacology; C. E. Clymer, professor of clinical surgery, and Henry H. Turner, University of Oklahoma School of Medicine, $150, to investigate the blood cholesterol and iodine values in thyroid disease and their alteration by treatment.

Grant 264: Detlev W. Bronk, Johnson professor of biophysics, University of Pennsylvania School of Medicine, $200, to investigate the action of various drugs on the autonomic centers.

Grant 270: Elaine P. Ralli, assistant professor of medicine, New York University College of Medicine, $250, to investigate the effect of carotene on the blood vitamin A.

Grant 278: William H. Lewis Jr., assistant clinical professor of medicine, and Arthur C. DeGraff, professor of therapeutics, New York University College of Medicine, $150, to investigate the function of the heart in relation to age.

Grant 279: Norman A. David, assistant professor of pharmacology, University of Cincinnati College of Medicine, $65, to investigate the effects of carbarsone and other pentavalent arsenicals on the optic nerve.

Grant 280: John P. Peters, professor of medicine, Yale University School of Medicine, $200, to investigate by means of intravenous pyelography the state of ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of toxemia.

Grant 281: O. W. Barlow, formerly assistant professor of pharmacology, Western Reserve University School of Medicine, $125, to investigate circulatory effects of metrazol under conditions of anesthesia with ether as well as under the influence of hypnotics.

Grant 282: Arthur W. Grace, Department of Medicine, Cornell University Medical College, $250, to investigate the effect of roentgen and Frei vaccine therapy in artificially inoculated venereal lymphogranuloma in guinea pigs.

Grant 297: Melvin Dresbach, Harvard University School of Medicine, $250, to investigate the emetic effect of some of the digitalis bodies.

Grant 298: Kenneth W. Thompson, Department of Physiology, Yale University School of Medicine, $200, to investigate the effects of the thyroid stimulating hormone.

Grant 302: Mary E. Collett, Flora Stone Mather College, Western Reserve University, $200, to investigate the effect of the female sex hormone on the hot flashes and the basal metabolism of ovariectomized women.

Grant 304: Howard B. Lewis, professor of biologic chemistry, University of Michigan Medical School, $175, to investigate selenium salts.

Grant 305: Beverly Douglas, assistant dean and associate professor of surgery, Vanderbilt University School of Medicine, $250, to investigate the pneumatic (transparent rubber jacket) system of treating extensive wounds.

Grant 306: Edwards A. Park, professor of pediatrics, Johns Hopkins University School of Medicine, $75, to investigate rickets in the rat and the effect of solution of parathyroid on the circulation of the bone.

Grant 307: Ephraim Shorr, assistant professor of medicine, Cornell University Medical College, $200, to investigate methods of determining adequate dosage of corpus luteum hormone for the human being.

Grant 308: Claus W. Jungeblut, professor of bacteriology, Columbia University College of Physicians and Surgeons, $250, to investigate the relation of vitamin C to diphtheria.

Grant 311: Clarence P. Berg, assistant professor of biochemistry, State University of Iowa, $250, to investigate amino acids.

Grant 313: Treat B. Johnson, Sterling professor of chemistry, Yale University, $250, to investigate pyrimidines.

Grant 314: F. C. Koch, chairman Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate provitamin D.

Grant 315: Erwin E. Nelson, professor of pharmacology, Tulane University School of Medicine, $125, to investigate some actions of the pituitary.

Grant 316: Edward Van Liere, professor of physiology, West Virginia University School of Medicine, $100, to investigate the action of various drugs on gastric motility.

Grant 319: J. P. Quigley, Department of Physiology, Western Reserve University School of Medicine, $250, to investigate gastrointestinal motility.

Grant 324: Howard B. Lewis, professor of biologic chemistry, University of Michigan Medical School, $200, to investigate selenium salts.

Grant 327: Eben J. Carey, dean and professor of anatomy, Marquette University School of Medicine, $250, to investigate the pharmacologic agents that influence the histologic signs of nervous action.

Grant 328: Donald E. Gregg, assistant professor of physiology, Western Reserve University School of Medicine, $250, to investigate the cardiac blood supply in dogs.

Grant 329: Roberta Hafkesbring, associate professor of physiology, Woman's Medical College of Pennsylvania, $250, to investigate the effects of sodium barbital, sodium amytal and pentobarbital sodium on blood pressure, respiration and kidney function.

Grant 332: J. P. Simonds, department of pathology, Northwestern University Medical School, $200, to investigate the selective activity of toxic substances on the kidneys.

Grant 333: Owen S. Gibbs, chief of Pharmacological Division, University of Tennessee College of Medicine, $180, to investigate the toxicity of morphine and scopolamine on rats.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ending December 31, 1938

Reserve invested as at December 31, 1937	$2,340,373.00	
Bonds Purchased (Cost)	200,812.50	
	$2,541,185.50	
Less:		
Bonds Called	$ 19,575.00	
Bonds Sold	100,406.25	119,981.25
Invested Funds December 31, 1938		$2,421,204.25
Balance for Investment December 31, 1937	$ 39,061.56	
Interest on Investments	87,954.48	
	$ 127,016.04	
Less:		
Transfer to General Fund	$ 83,939.06	
Uninvested Funds December 31, 1938		$ 43,076.98
Invested and Uninvested Reserve as at December 31, 1938		$2,464,281.23

DAVIS MEMORIAL FUND

Balance in Fund December 31, 1937	$7,118.75	
1938 Interest on Bank Balance	107.17	
Total Fund as at December 31, 1938 on Deposit		$ 7,225.92

HERMAN L. KRETSCHMER, Treasurer.

AUDITOR'S REPORT

February 1, 1939.

To the Board of Trustees,
American Medical Association, Chicago, Illinois.

Dear Sirs:

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1938, and of the Income Account for the year 1938. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence, and obtained information and explanations from officers and employees of the Association; we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enumerated in the index appended hereto.

In our opinion, based on such examination, the accompanying Balance Sheet and related Income Account fairly present the position of the Association as at December 31, 1938, and the results of its operations for the year, subject to the following qualifications and observations:

(1) The inventories of materials, supplies, work in progress and publications, amounting to $92,859.95, are stated in accordance with certificates signed by responsible officials of the Association, and have not been confirmed by us.

(2) In accordance with established practice of the Association, the accounts as stated do not include (a) unrecorded assets in respect of acerued interest on bond investments, and membership dues unpaid; and (b) provision for accrued payroll, accrued property taxes for the year 1938, and sundry unpaid bills.

(3) Subscriptions paid in advance are stated at an estimated amount which is based on cash received in December 1938, on account of 1939 subscriptions. This procedure conforms to the method used in prior years.

(4) Advance payments on publications include an estimated amount ($123,745.97) for prepaid subscriptions to Hygeia, and the amount ($12,430.47) received in advance for January 1939, advertising, directory information sales and service.

(5) The buildings of the Association are carried at reproduction values as determined by an appraisal by Holabird and Root as at December 31, 1936, less depreciation accrued to the date of the Balance Sheet. The portion of the depreciation provision for the year applicable to the increase in book value which was recorded at December 31, 1936, as determined by the appraisal, has been charged against the complementary credit included in the Net Worth of the Association in that connection.

(6) No provision has been made in the accounts for possible liability in respect to Federal Social Security Taxes applicable to the period prior to April 28, 1938, amounting to approximately $90,000.00 (including penalties and interest), which liability is contingent upon the outcome of an appeal now pending in the Bureau of Internal Revenue with regard to the status of the Association under the Federal Income Tax Act.

The Association was advised by a letter dated March 4, 1936, from the office of the Commissioner of Internal Revenue, that it was held to be exempt from Federal Income Taxes, under the provisions of Section 101(6) of the Income Tax Act which relates to organizations operated exclusively for religious, charitable, scientific, literary or educational purposes. In a published bulletin issued in January 1937, the Bureau of Internal Revenue ruled that an organization which had been held to be exempt from Federal Income Taxes, under the provisions of Section 101(6) of the Income Tax Act, is also exempt from the taxes imposed under Titles VIII and IX of the Social Security Act. On April 28, 1938, however, the previous ruling (March 4, 1936) regarding the Association's status was supplanted by an advice from the Office of the Commissioner of Internal Revenue to the effect that the basis of exemption should be Section 101(7) of the Income Tax Act, instead of Section 101(6) as previously indicated; the provisions of Section 101(7) relate to organizations classified as business leagues and the like, which are not exempt from Social Security Taxes. The Association has appealed to the Bureau of Internal Revenue for reconsideration of the later ruling (April 28, 1938) and reclassification as a scientific and educational organization.

Pursuant to the ruling of April 28, 1938, the Association was requested by the Treasury Department to file proper returns and pay the taxes required by Titles VIII and IX of the Social Security Act, for the periods from the respective effective dates thereof. The Association, however, has not acceded to this request insofar as the period prior to April 28, 1938, is concerned, but returns have been filed for the period subsequent to that date, as and when due, and the taxes reported therein have been paid under protest.

We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, attorneys for the Association, regarding litigation pending against the Association or its officers at December 31, 1938, which states that the following lawsuits alleging libel had been filed against the Association or its officers as at December 31, 1938: Dr. Jean Paul Fernel for $1,000,000.00; Robert Wadlow by Harold F. Wadlow for $150,000.00; Hirestra Laboratories, Inc., for $3,000,000.00; Asa Brunson for $250,000.00; William E. Balsinger for $100,000.00; and John R. Brinkley for $250,000.00. In addition to the foregoing suits, the Association is named defendant in certain actions charging conspiracy in restraint of trade. The attorneys state that in their opinion all of these suits will be defeated.

Fidelity insurance is carried against the undermentioned officers and employees, in the amounts stated:

Dr. Olin West, Secretary and General Manager	$10,000.00
Dr. Herman L. Kretschmer, Treasurer	10,000.00
E. A. Hoffman, Cashier	10,000.00
J. E. Hartigan, Assistant Cashier	2,000.00
Sundry Employees (twelve, $1,000.00 each)	12,000.00
Total Fidelity Insurance	$44,000.00

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet, as at December 31, 1938	"A"
Income Account, for the year ended December 31, 1938	"B"
	Schedule
Journal Operating Expenses, for the year ended December 31, 1938	"1"
Association and Miscellaneous Expenses, for the year ended December 31, 1938	"2"

EXHIBIT "A"

ASSETS:

BALANCE SHEET AS AT DECEMBER 31, 1938

Property and Equipment:		
Real Estate—Land at less than cost (see Note "1"); and Buildings at Reproduction Cost New (as appraised by Holabird and Root at December 31, 1936), less Depreciation		$1,146,868.37
Equipment—at Cost, less Depreciation:		
Machinery	$ 127,852.74	
Type and Metal	16,163.69	
Furniture and Equipment	89,882.45	
Chemical Laboratory	8,957.77	242,856.65
Total Property and Equipment		1,389,725.02
Investments—at Cost:		
U. S. Government Securities	1,553,723.06	
Railroad, Municipal and Public Utility Bonds	867,481.19	2,421,204.25
Cash held by Treasurer for Investment		43,076.98
Cash in Bank and on Hand		136,503.86
Accounts Receivable:		
Advertising	63,861.98	
Co-operative Medical Advertising Bureau	12,592.29	
Reprints	3,797.27	
Directory (Estimated)	10,000.00	
Miscellaneous—Deposits, Advances, etc.	15,247.32	105,498.86
Note Receivable		100.00
Inventories of Materials, Supplies, Work in Progress and Publications		92,859.95
Expenditures on Publications in Progress		43,392.23
Prepaid Expenses—Insurance, etc.		7,321.25
Total		$4,239,682.40

Note 1: Book value of Land was reduced $40,000.00 as of December 31, 1933, by official action of Board of Trustees. This action was reported to House of Delegates.

LIABILITIES:

Accounts Payable:			
Federal Social Security Taxes (see Note "2")			$ 28,427.78
Co-operative Medical Advertising Bureau			12,092.19
Miscellaneous			5,084.06
			45,604.03
Subscriptions Paid in Advance			165,914.61
Advance Payments on Publications			136,176.44
Net Worth:			
Association Reserve Fund		$ 350,000.00	
Building Reserve Fund		350,000.00	
Retirement Reserve Fund		25,000.00	
Capital Account:			
Amount thereof as at December 31, 1937	$3,135,053.52		
Net Loss for the year ended December 31, 1938	11,401.51		
	$3,123,652.01		
Deduct — Amounts transferred during year to Building Reserve Fund ($50,000.00) and Retirement Reserve Fund ($25,000.00)	75,000.00	3,048,652.01	
Increase in book value of Buildings—per appraisal	124,481.59		
Deduct—Depreciation applicable thereto for the years 1937 and 1938	6,146.28	118,335.31	
Net Worth, December 31, 1938			3,891,987.32
Total			$4,239,682.40

Note 2: No provision has been made in the accounts for possible liability in respect of Federal Social Security Taxes applicable to the period prior to April 28, 1938, amounting to approximately $90,000.00 (including penalties and interest)—See comment in attached report.

EXHIBIT "B"

INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1938

Journal:		
Gross Earnings:		
Fellowship Dues and Subscriptions		$ 655,875.91
Advertising		875,367.43
Jobbing		96,731.41
Reprints		1,139.47
Books		18,915.87
Insignia		6,835.86
Miscellaneous Sales		7,786.80
Gross Earnings from Journal		1,662,652.75
Operating Expenses—Schedule "1"		1,020,940.53
Net Earnings from Journal		641,712.22
Miscellaneous Income:		
Rents	$ 1,200.00	
Sundry Publications	4,204.29	5,404.29
Association Income:		
Income from Investments	86,857.26	
Miscellaneous Income	3,232.79	90,090.05
Gross Income		737,206.56
Association Expenses—Schedule "2"	458,499.27	
Miscellaneous Expense—Schedule "2"	290,108.80	748,608.07
Net Loss		$ 11,401.51

Note: No provision has been made in the accounts for possible liability in respect of Federal Social Security Taxes applicable to the period from January 1, 1938, to April 28, 1938, amounting to approximately $20,000.00 (including penalties and interest)—See comment in attached report.

SCHEDULE "1"

JOURNAL OPERATING EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1938

Wages and Salaries		$ 486,342.28
Editorials, News and Reporting		12,139.56
Paper—Journal Stock		250,163.52
Paper—Miscellaneous		2,090.62
Electrotype and Engravings		15,033.40
Binding		629.86
Ink		9,063.19
Postage—First Class		38,871.82
Postage—Second Class		64,336.09
Journal Commissions		16,204.10
Collection Commissions		620.44
Discounts		30,345.89
Express and Cartage		5,802.48
Exchange		2,450.89
Office Supplies		2,784.43
Telephone and Telegraph		3,620.77
Office Jobbing		15,710.89
Power and Light		10,035.79
Factory Supplies		11,823.80
Repairs and Renewals—Machinery		5,494.48
Miscellaneous Operating Expenses		23,290.55
Bad Debt Losses, and Loss from Sale of Equipment, etc. (Net)		1,775.21
Total Journal Operating Expenses, before Provision for Depreciation		1,008,630.06
Depreciation on Equipment (computed on diminishing Balances):		
Machinery	$6,729.09	
Furniture and Equipment	4,312.29	
Factory Equipment	418.37	
Type	343.41	
Metal	507.31	12,310.47
Total Journal Operating Expenses		$1,020,940.53

SCHEDULE "2"

ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1938

Association Expenses:	
Association	$114,859.42
Health Education	36,892.70
Pharmacy and Chemistry	49,331.41
Chemical Laboratory	24,926.43
Medical Education and Hospitals	77,180.76
Therapeutic Research	7,579.18
Legal Medicine and Legislation	37,670.88
Bureau of Investigation	12,272.06
Bureau of Medical Economics	35,457.50
Council on Foods	22,184.83
Physical Therapy	17,823.33
Council on Industrial Health	7,726.70
Bureau of Association Exhibits	14,122.61
Laboratory Depreciation (5% on diminishing balances)	471.46
Total Association Expenses	$458,499.27
Miscellaneous Expenses:	
Insurance and Taxes	$ 28,778.38
Legal and Investigation	67,096.56
Building Expenses	32,611.64
Building Depreciation (2.5% on diminishing balances—cost basis)	18,968.18
Fuel	8,361.96
Federal Social Security Taxes (see Note)	30,784.71
Sundry Publications	103,507.37
Total Miscellaneous Expenses	$290,108.80

Note: The above expenses do not include any provision for possible liability in respect of Federal Social Security Taxes applicable to the period from January 1, 1938, to April 28, 1938, amounting to approximately $20,000.00 (including penalties and interest)—See comment in attached report.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

With the exception of applications for Fellowship in the Association which for one reason or another require investigation by the Judicial Council, the volume of work coming before it has been less than for several years. There has been the usual number of inquiries of an ethical or constitutional nature from individuals and from county and state societies. These inquiries can in general be answered by the Secretary or the Chairman without reference to the entire Council because of official opinions or answers in preceding similar situations. However, all such replies by the Secretary or Chairman receive official approval by the Council at a subsequent meeting.

It is surprising when consideration is given to the vast number and variety of schemes for reducing sickness costs to the low-income population by periodic prepayment plans that the Council has not been asked for an opinion on the ethical features of a single plan. Whether rightly or wrongly, there has been such popularity and enthusiasm for these plans and such haste in their development that the ethical principles involved apparently have been completely ignored. The Council believes it can see a rapidly growing menace to many of the sound principles which have governed the practice of medicine by the members of this organization for many years and which have contributed in preponderant measure to the high quality of medical care which the people of this country as a whole enjoy. In this report the Council desires only to sound a warning and a caution and to call attention to the fact that the practice of medicine by the members of this organization is governed, so far as ethical considerations are concerned, by the Principles of Medical Ethics as approved and adopted by the House of Delegates, which will remain as they are until the House itself changes or eliminates them. The function of the Judicial Council is interpretation only.

But one appeal from a disciplinary action by a constituent association has been brought before the Judicial Council this past year. This appeal was heard recently. The briefs and arguments are under consideration and study by the individual members of the Council. No decision has been reached as yet.

Teaching in Schools of Chiropody or Podiatry

At the last annual meeting of the House of Delegates, in San Francisco, a resolution was introduced declaring that the serving of members of the American Medical Association on the faculties of schools of chiropody is unethical. The cause of the introduction of the resolution was a statement made in the annual report of the Judicial Council for that year that "teaching in cultist schools and addressing cultist societies is even more reprehensible" than association with cultists in practice. The resolution was referred to the Judicial Council as a reference committee and on its recommendation the resolution was laid on the table. Since that meeting the Council has investigated the matter further and is of the opinion that the practice of chiropody is not a cult practice as is osteopathy, chiropractic or Christian science, which have bases of treatment not supported by scientific or demonstrated knowledge but on which bases all diseases are treated. Chiropody is rather a practice ancillary—a hand maiden—to medical practice in a limited field considered not important enough for a doctor of medicine to attend and therefore too often is neglected. General opinion seems to be that chiropody fairly well satisfies a gap in medical care that the profession has failed to fill. There are several reputable medical colleges whose faculties teach this branch of the healing art to students who later become chiropodists and the Council can see no reason to declare such teaching by members of this organization to be unethical, provided the schools in which they teach are connected with approved schools of medicine and recognized standards of premedical education are required.

Diagnostic Clinics

The Judicial Council has been asked to give a definition of a "diagnostic clinic." The word clinic is a very popular one in medical practice today and may mean anything from one doctor practicing medicine with lay assistants to a most elaborate organization prepared to do anything of a medical nature. There are also many types of clinics the names of which describe the type of work done in them. The Greek basis of the word "clinic" meant simply medical instruction at the bedside of patients. The term has never been copyrighted and any one may use it and put his own interpretation on its meaning. The name "clinic," because of its association with the earlier users of the term, now in the lay mind implies a very superior service by very superior individuals, which too frequently is not the case. If the American Medical Association is to define a diagnostic clinic it must be done in a way that will represent the efficiency that modern scientific progress has made possible to the doctor of medicine who has kept abreast of that progress, and the idealism or ethical principles that for hundreds of years have been our most cherished heritage as a profession. It must not be a definition which any charlatan, be he medical or lay, can point to as describing himself. It must be a definition which is definite. Obviously such a definition cannot be made in a sentence and equally obvious is the fact that those most anxious to use the designation will be the least pleased with it. The Council has given careful consideration to the problem of what a real diagnostic clinic is and what it should be and has sought advice from sources held in high esteem. It submits the following as its opinion of a proper definition of a diagnostic clinic worthy of the name:

1. A diagnostic clinic is an organization of physicians whose sole work in the clinic is to make or supervise diagnostic examinations of patients referred to the clinic by doctors of medicine, or to collaborate in general diagnostic surveys.

2. The reports of the diagnostic clinic on examinations and tests are made only to the referring physician unless he requests that the case and the recommendations for treatment be discussed with the patient as a part of a professional consultation at which the relationship of the results of the diagnostic studies to the general condition of the patient is open for discussion. In such case, discussion is only by a member of the staff.

3. The staff of the diagnostic clinic should include representatives from all the specialties that are of recognized diagnostic usefulness. Every clinical examination, laboratory test or x-ray procedure is made by a physician who specializes in that field or under his supervision. The clinic must be equipped to allow the various specialists to exercise fully their abilities.

4. The control of the clinic must be vested in one or more members of the professional staff. Any profits are to be apportioned only to the members of the staff actually engaged in the work of the clinic. There must be no dividends, bonuses or salaries paid any individual except for services rendered.

5. The clinic must be governed in its activities by the same ethical principles as apply to an individual member of the American Medical Association.

It is recognized that under this definition only in cities large enough to support the various specialists needed can a diagnostic clinic be established or maintained. Unless the specialists are available it is not a diagnostic clinic worthy of the name.

Respectfully submitted.

George Edward Follansbee, Chairman.
Edward R. Cunniffe.
Walter F. Donaldson.
John W. Burns.
John H. O'Shea.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

1. In connection with the survey of undergraduate medical schools the following institutions have been revisited:

University of Arkansas School of Medicine
Boston University School of Medicine
Wayne University College of Medicine
Albany Medical College
Wake Forest College School of Medical Sciences
Woman's Medical College of Pennsylvania
Medical College of the State of South Carolina
Meharry Medical College
University of Tennessee College of Medicine

Reports indicating progress have been received from:

University of Maryland School of Medicine and College of Physicians and Surgeons
University of Missouri School of Medicine
University of North Carolina School of Medicine
Hahnemann Medical College and Hospital of Philadelphia
Medical College of the State of South Carolina

2. The Council's report of the survey is being prepared and will be ready for publication, it is hoped, by the end of the summer.

3. Graduate education, for purposes of study, has been considered under three categories: first, systematic courses of instruction conforming to generally accepted academic standards; second, apprenticeship courses, consisting of residencies and fellowships, and, third, extension courses, conducted either separately or jointly by universities and medical societies. A preliminary report on this phase of graduate medical education was published in August 1938. The complete report will be issued when all the states have been visited.

4. From Feb. 1, 1938, to Jan. 31, 1939, 375 hospitals were visited, as follows:

For approval of internships	207
For approval of residencies	88
For approval of both	52
For registration	28

5. The report of the Interdepartmental Committee to Coordinate Health and Welfare Activities proposed among other things a vast increase in the hospital facilities of the United States. The evidence which the committee submitted in support of its program was so untrustworthy that the Council felt compelled to prepare and circulate a pamphlet showing the exact distribution of hospital facilities in the United States.

6. The Council has also made a careful study of existing hospital facilities in a single state—Mississippi—a report of which will be presented to the House of Delegates at St. Louis.

7. In addition to the visitation of hospitals, inspections were made of technical schools as follows:

Laboratory technic	25
Physical therapy	6
Occupational therapy	1

8. The Council, during 1938, was represented at the following meetings:

American Medical Association, San Francisco
American Medical Association, Conference on Industrial Health, Chicago
American Hospital Association, Dallas, Texas
Catholic Hospital Association, Buffalo
Association of American Medical Colleges, Syracuse, N. Y.
American Congress of Physical Therapy, Chicago
American Society of Pharmacology and Experimental Therapeutics, Baltimore
American Society of Tropical Medicine, Oklahoma City
Federation of American Societies for Experimental Biology, Baltimore
Southern Medical Association, Oklahoma City
History of Science Society, Chicago
Northwest Regional Conference, Chicago
Tri-State Hospital Association, Chicago.
American Congress of Physical Therapy, Western Section, Los Angeles
Illinois Society of Experimental Biology and Medicine, Chicago
Minnesota Hospital Convention, St. Paul
Michigan Hospital Association
Postgraduate Course on Industrial Hygiene, Allegheny County Medical Society, Pittsburgh
Multnomah County Society, Portland, Ore.
Hospital staff meetings, twenty-three
Installation of president of Tulane University, Vanderbilt University and Tufts College

9. Exhibits were prepared for:

World's fairs, New York and San Francisco
San Francisco and St. Louis meetings, American Medical Association
American Hospital Association
Catholic Hospital Association

10. Publications:

Hospital Number of THE JOURNAL
State Board Number of THE JOURNAL
Educational Number of THE JOURNAL
Study of Hospital Facilities in the United States
Study of Graduate Medical Education
Approved Colleges of Arts and Sciences and Junior Colleges
Choice of a Medical School
Data for fifteenth edition of American Medical Directory on medical schools, special examining boards and hospitals
Proceedings of Annual Congress
Essentials

11. Owing to the pressure of extra work created by the National Health Conference last July and by the indictment of the Association by a grand jury of the District of Columbia, the Council is not yet in a position to make a complete report on medical practice in hospitals in accordance with the instructions of the House of Delegates (THE JOURNAL, July 2, 1938, p. 45), but an agreement has been reached with a representative group of radiologists as to the definition of the function of the radiologist in the hospital. This definition is incorporated in the revised Essentials of a Registered Hospital, submitted herewith for approval.

12. At the Congress on Medical Education and Licensure, the registration this year was 550, indicating a larger attendance than at any time within the last ten years.

13. Through the Social Security Act, the federal government has made available several million dollars for the further training of physicians. A number of state societies have found it possible, through the cooperation of the state department of health, to direct the expenditure of this money and to strengthen their own programs of postgraduate education. In other states the health department has inaugurated independent courses with results not altogether satisfactory. The House of Delegates might well bring to the attention of each of the constituent societies of the Association the paramount importance of retaining control of this phase of professional education.

14. At the Council's meeting of Feb. 11, 1939, a committee consisting of Dr. Willard C. Rappleye, Dr. Robin C. Buerki and Dr. J. W. Bowers presented to the Council an invitation to participate in the formation of an "Advisory Council on Medical Education, Licensure and Hospitals," an organization initiated by representatives of some eight or ten associations more or less interested in the subjects named in the title. This invitation reads:

> This Council is created to meet the need of a body representing the medical profession, the universities, medical schools, hospitals, licensing bodies, specialty boards, public health agencies and other national organizations in this country which deal with different phases of medical education. The Council shall serve as a clearing house for the cooperative consideration of those problems and programs of professional training with which more than one organization is concerned, and shall serve as a medium for consultation and mutual assistance in the formulation and support of adequate educational standards, and as an agency for advice and recommendations to member and other organizations dealing with medical education.

The Council, feeling itself incompetent to act on this matter without instructions from the House of Delegates, voted:

> That the Council recommend to the House of Delegates that it be authorized to appoint from its body three representatives to act on this Advisory Council on Medical Education, Licensure and Hospitals without voting power.

15. The Council submits herewith for the approval of the House of Delegates:

(*a*) Revised "Essentials of a Registered Hospital."
(*b*) Revised "Essentials of Approved Residencies and Fellowships."
(*c*) Revised "Essentials for Approved Examining Boards in Specialties."

Respectfully submitted.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS.
RAY LYMAN WILBUR, Chairman.
J. H. MUSSER.
FRED MOORE.
REGINALD FITZ.
FRED W. RANKIN.
CHARLES GORDON HEYD.
FRANK H. LAHEY.
WILLIAM D. CUTTER, Secretary.

Essentials of a Registered Hospital

General Statement.—The American Medical Association gives recognition to hospitals by admitting to the Hospital Register those that are found to qualify according to the essentials contained in the following paragraphs.

Registration is a basic distinction between all recognized hospitals and those that are refused recognition. It is a prerequisite to the consideration of a hospital for approval for interns or for residencies in specialties.

The registration of hospitals, the approval of hospitals for interns, approval for residencies in specialties, and all other service of the Association regarding hospitals is carried on by the Council on Medical Education and Hospitals.

It is the desire of the Council to cooperate in every way for the improvement of hospital service, whereby the sick and injured may be provided with scientific and ethical medical care.

The Council does not have nor does it assume legal authority over any hospital. It recognizes clearly that the officers in charge of such institutions have the unquestioned right to conduct the hospitals in any way they may deem wise. If a hospital desires to have its name appear on the American Medical Association Hospital Register and thus have the endorsement of that Association, it should be willing to comply with the principles which the Council on Medical Education and Hospitals considers necessary.

Essentials of a Registered Hospital.—Hospitals seeking admission to the register should have the following qualifications:

1. *Organization.*—The organization should consist of a board of trustees or other supreme governing body having final authority and responsibility and an executive officer or superintendent to carry out the policies adopted by the governing body. The executive officer should be assisted by adequate competent personnel.

Regardless of the form of organization, the hospital should function primarily in the interests of the sick and injured of the community.

2. *Staff.*—This constitutes the most important essential. The staff should be organized and composed of regular physicians who are properly qualified as to training, licensure and ethical standing.

Staff membership and the use of the hospital's facilities must be limited to doctors in medicine. Where cult practitioners, osteopaths, chiropractors or other healers outside the scope of regular medicine are allowed to use the hospital's diagnostic facilities, to prescribe for or treat patients in the hospital, or to enter orders or other data on the case records, such a hospital obviously cannot be recognized or endorsed by the American Medical Association.

Regular staff conferences should be held at least monthly and preferably more often. All deaths that occur during the period intervening between meetings, perplexing cases, and patients who do not respond to treatment should be discussed. When postmortem examinations have been performed there should be a presentation of the clinical aspect of the patient and the postmortem observations. Interesting pathologic specimens from surgery or removed at postmortem should be presented and discussed with regard to the preoperative or antemortem findings.

Minutes of staff conferences should be kept and filed with the hospital records. The activity of the staff as to scientific meetings and clinical and pathologic conferences is an index to the scientific mindedness and progressiveness of the group.

3. *Nurses.*—A competent nursing staff should be provided by employing an adequate number of registered nurses who are graduates of schools of nursing recognized by the state board of nurse examiners, or by maintaining such a school.

All nursing should be supervised by qualified registered graduates.

4. *Records.*—An adequate record system should be maintained. No particular system or set of forms is recommended, since requirements are not the same under varying circumstances. The average case record should include at least a brief medical history, physical examination, laboratory reports, diagnosis, operative record, progress notes, nurses' notes and summary. Case records should be complete in every department and reviewed and signed by the attending physicians before they are placed in the permanent file. Roentgenologic interpretations, pathologic descriptions and diagnoses of tissues removed in the operating room, and (when an autopsy has been performed) a description of postmortem observations, should be included with the patient's record.

Case histories and physical examinations should be recorded in the patient's chart within twenty-four hours after the patient has been admitted to the hospital. A patient should not be operated on, except in the case of emergency, when the history, physical examination and routine laboratory work have not been completely recorded in the chart. The duty of recording these data falls on the attending physician and he should be held directly responsible for the case records.

Monthly and annual analyses of hospital service should be made in order that the staff may be in a position to improve its service.

5. *Pharmacy.*—The handling of drugs should be adequately supervised and should comply with state laws.

6. *Pathology.*—The hospital should provide or have ready access to laboratory facilities in accordance with its needs. All tissues removed in the operating room should be examined, described and diagnosed by a competent pathologist excepting tissues, such as tonsils and teeth, in which the pathologic changes are quite obvious.

A physician-pathologist qualified by training and experience to supervise the laboratory service and interpret tissue pathology should be employed on a full time or part time basis. When this is not practicable, arrangements should be made with a consulting pathologist for tissue diagnosis, postmortem work and the interpretation of the more complicated tests and determinations in clinical and surgical pathology, as well as in general clinical laboratory work. Preferably the pathologist should be a physician who holds a certificate of the American Board of Pathology.

Autopsies.—Every effort should be made to secure consent for autopsies, which should be performed by a competent pathologist.

7. *Radiology.*—The responsibility for all radiologic examinations must rest on the physician-roentgenologist who is head of the department. His findings and conclusions for all examinations should be placed in the patient's chart. Nothing in this provision should preclude additional study and interpretations by qualified attending physicians on the staff.

The physician-roentgenologist should be preferably one who is a diplomate of the American Board of Radiology or a physician whose qualifications are acceptable to the Council on Medical Education and Hospitals of the American Medical Association.

It shall not be the policy of the hospital to make a profit from the department of radiology.

8. *Ethics.*—In order that a hospital may be eligible for registration it will, of course, be expected that the staff and management conform to the principles of medical ethics of the American Medical Association with regard to advertising, commissions, division of fees, secret remedies, extravagant claims, overcommercialization and in all other respects.

Essentials of Approved Residencies and Fellowships

Residencies and fellowships in the clinical branches of medicine and surgery, pathology and radiology represent advanced training usually in preparation for the practice of a specialty. Residencies in specialties, as defined by the Council, are straight services of one or more years following an approved internship. A fellowship is a form of apprenticeship which in some cases is indistinguishable from a residency, although it usually offers greater opportunity for the study of basic sciences and research. Ordinarily a fellowship is a university rather than a hospital appointment. Mixed residencies are general hospital assignments following internship. (They include services classified as general residencies and chief residencies.)

Approved residencies and fellowships are offered in the following branches of medicine:

1. Anesthesiology
2. Cardiology
3. Communicable Diseases
4. Dermatology and Syphilology
5. Epilepsy
6. Fractures
7. Gynecology
8. Malignant Diseases
9. Medicine
10. Mental Deficiencies
11. Mixed Residency
12. Neurology
13. Neurosurgery
14. Obstetrics
15. Obstetrics-Gynecology
16. Ophthalmology
17. Ophthalmology-Otolaryngology
18. Orthopedic Surgery
19. Otolaryngology
20. Pathology
21. Pediatrics
22. Physical Therapy
23. Plastic Surgery
24. Psychiatry
25. Radiology
26. Surgery
27. Thoracic Surgery
28. Traumatic Surgery
29. Tuberculosis
30. Urology

I. GENERAL REQUIREMENTS

Registration.—Previous admission to the Register of the American Medical Association is essential in the case of hospitals offering fellowships and residencies in specialties.

This implies that each hospital must be adequately organized, staffed and equipped and that it be conducted primarily for the welfare of the sick. The educational function described in these Essentials is supplementary to the main purpose of the hospital service but is closely related thereto in that it serves to improve the quality of medical practice.

Size.—The size of the institution is not a primary consideration. The clinical material, however, should be sufficient to enable residents and fellows to observe the principal manifestations of the disease, or diseases, they are studying.

Plant and Equipment.—The physical plant should be such as to assure the safety and comfort of the patients. There should be such equipment, appliances and apparatus as are commonly employed in the specialty in which training is offered and in the use of which the resident should become proficient.

II. STAFF

There must be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from acceptable medical schools. The particular specialties in which residents are being trained must be represented on the staff by well qualified, experienced and proficient physicians.

In general hospitals, the staff shall further provide a definite departmental organization in those branches of medicine in which residencies are offered. The director of each service should be a competent specialist who is at least eligible for certification by the corresponding specialty board. He should assume direct responsibility for the training of residents and fellows and should stimulate others of his staff to give instruction and sympathetic cooperation which graduate students require.

It is essential that there shall be at least monthly clinical-pathologic conferences or other regular staff meetings at which histories and clinical observations in selected cases may be reviewed, particularly when the death of patients has necessitated special study including necropsy performance. In addition to meetings of the staff as a whole, it is expected that departmental conferences shall be conducted in which residents may take an active part to the end that the character of the service given by that department to its patients may be recurringly evaluated. Other educational activities requiring the full support of the staff are described under Training Program, section IX.

III. DEPARTMENT OF RADIOLOGY

The department of radiology shall be under the direction of a qualified radiologist proficient in the various functions of his specialty. He must likewise cooperate in all matters pertaining to residencies and fellowships which fall within the scope of his service. The department should contain roentgenographic, roentgenoscopic and, where required, therapeutic equipment and radium. All these facilities are essential in institutions offering a complete residency or fellowship program in radiology.

After Jan. 1, 1942, an applicant for certification by the American Board must have completed a period of study after the internship of at least three years in a recognized institution or radiologic department. This period of specialized training should include an active experience in radiology of not less than twenty-four months and graduate instruction in pathologic anatomy, radiophysics and radiobiology. Board certificates are offered in (1) the entire field of radiology, (2) roentgenology, (3) diagnostic roentgenology and (4) therapeutic radiology.

Residencies and fellowships of from one to three years' duration should be organized in such a manner that on completion of the graduate program the aggregate of training will coincide with the foregoing requirements. Courses of shorter duration, however, may provide the basic instruction in radiology required by other specialties. A complete residency or fellowship program supplies training in all divisions of the specialty—diagnostic roentgenology, therapeutic roentgenology and radium therapy. Without attempting to define a detailed plan of instruction it can be suggested that the first year be devoted principally to pathology, roentgenologic technic and a general orientation in the radiologic field. In the second and third years the clinical applications of radiology should be emphasized with at least six months assigned exclusively to radiotherapy. In view of the importance of pathology as a basis for radiologic diagnosis and therapy it is recommended that a minimum of six months be devoted to pathologic anatomy, particularly the study of gross pathology and tumors. Instruction in radiophysics and radiobiology may well run concurrently with the training in radium therapy and therapeutic roentgenology.

Residencies in a restricted field of radiology can likewise be modeled on this plan. The training should be systematic and progressive in character with gradual assignment of responsibility in both diagnosis and therapy. It should also include an active participation in radiologic conferences, staff meetings, and joint conferences with other departments. An adequate amount of clinical material must be available in the divisions of radiology in which residency or fellowship training is offered.

IV. DEPARTMENT OF PATHOLOGY

The department of pathology must be under the supervision of a qualified pathologist who shall be prepared to cooperate fully in the training of graduate students and supervise any direct contact which they have with the laboratory. The department should provide apparatus, reagents and materials necessary to the operation of a modern clinical and pathologic laboratory. Adequate necropsy facilities should also be available.

Residencies and fellowships, in contrast to the shorter courses for basic instruction in pathology, are ordinarily of from one to three years' duration. Thus they may serve to fulfil the requirements for certification, which specify in addition to the internship a period of study of at least three calendar years, including one year in the various phases of clinical pathology and not less than two years of training and experience in a department of pathologic anatomy. (The training may be combined or in sequence.)

The teaching material must be sufficient in kind and amount to afford graduate students adequate training in all divisions of the service and in both gross and microscopic pathology. Systematic instruction should be carried out with the use of fresh material and collections of slides and museum specimens for comparative studies in histology and pathology. As the training continues an increasing amount of responsibility should be assigned to the residents and fellows in tissue diagnosis, in actual performance of postmortem examinations and in the preparation of pathologic reports and necropsy protocols. Further instruction should be obtained through active participation in clinical-pathologic conferences, staff meetings and joint conferences with other departments.

V. NECROPSIES

Thoroughness in postmortem performance should be emphasized. All institutions and individual clinical services desiring approval for the training of residents or fellows must examine post mortem 15 per cent or more of their fatal cases. An additional requirement of at least 100 necropsies a year applies to institutions offering residencies or fellowships in pathology. Complete necropsy records should be kept on file and each should contain a summary of the clinical record and a detailed description of both the gross and the microscopic observations. Graduate students of all departments should attend postmortem examinations as often as possible. They may, with value, participate in the performance of necropsies from their own service and in the preparation of the protocols.

VI. MEDICAL LIBRARY

Institutions offering graduate training should maintain or provide ready access to an adequate medical library containing modern texts, the QUARTERLY CUMULATIVE INDEX MEDICUS and current journals relating to the fields in which residencies and fellowships are offered.

VII. HISTORIES AND RECORDS

There must be complete histories giving the patient's complaint, physical examination at time of admission, preliminary diagnosis, laboratory observations, descriptions of operations if any, regular progress notes, final diagnosis, condition on discharge, end results and, in case of death, necropsy observations if postmortem examination is performed.

The histories should show by signatures, or initials, all persons writing them or parts of them as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed.

The records should be in charge of some competent person, preferably a trained record librarian. Alphabetical and diagnostic indexes of the patients should be maintained and the records filed so as to be readily accessible from either source. Operative procedures and radiologic and pathologic material should likewise be classified in a suitable manner.

VIII. ELIGIBILITY OF APPLICANTS

Candidates for residencies or fellowships should be selected from graduates of approved medical schools, who have served an internship in an approved hospital or have had two or more years in practice. It is recommended, however, that candidates seeking residencies or fellowships in such specialties as urology, orthopedics, plastic surgery, thoracic surgery and neurosurgery should have completed one year of general surgical training in addition to the internship.

IX. TRAINING PROGRAM

Residencies and fellowships are designed primarily to meet the requirements for certification of special practice. Individually they may not fulfil all the essentials of a specialty board, but each service that is properly organized will make a substantial contribution to the graduate program. In all instances the term of service should be at least twelve months and might well be extended to two or more years when suitable facilities are available. An affiliation with a university or medical school is desirable to provide the required training in basic sciences relating to individual specialties.

Aside from the daily contact with patients and staff men, the assumption of responsibility is the most valuable aspect of residency and fellowship training. Consequently, as ability is demonstrated, an increasing amount of reliance should be placed in the judgment of graduate students both in diagnosis and in treatment.

Residents and fellows should be given an opportunity to contribute to the effectiveness of the hospital service by some investigative work. This may take the form of research in the hospital laboratories or wards, summaries of medical literature, or the preparation of statistical analyses derived from the hospital record department. The members of the resident staff should likewise be encouraged to engage in teaching activities, particularly in relation to the training of medical students, interns and nurses.

The effectiveness of a residency or fellowship program depends largely on the quality of medical supervision and teaching. It is important, therefore, that methods of instruction be employed which are best suited to the special field. Emphasis should be placed on bedside instruction, teaching rounds, departmental meetings or seminars, clinical-pathologic conferences, demonstrations and lectures. The review of medical literature is an essential feature of residency training. Likewise the study of basic sciences as required by specialty boards should be integrated with the clinical experience. In the operative divisions it is desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Additional requirements apply to graduate courses leading to advanced degrees.

The following regulations pertaining to individual specialties contain a brief abstract of the special training required for certification by the Specialty Boards. The full requirements for certification should be ascertained by direct correspondence with the secretary of each board as listed in section XI.

1. ANESTHESIOLOGY.—Present requirements for certification by the American Board include an internship of one year and at least four calendar years of active experience limited to anesthesiology. This period of specialized training and practice should include a minimum of two years of supervised clinical instruction in anesthesiology and graduate study in the related basic sciences, particularly anatomy, physiology, pharmacology and biochemistry. After Jan. 1, 1942, the requirements will be interpreted as three years of special training and three years of additional practice in anesthesiology.

The director of the department should be a qualified physician limiting his practice to anesthesiology. It is preferable that he serve on a full time basis to supervise the technical and educational activities of the department. His staff must include an adequate number of trained anesthetists in accordance with the needs of the service.

Equipment must be satisfactory for the teaching of modern methods of anesthesia and should include suitable apparatus for gas administration, resuscitation and inhalation therapy. Likewise, the clinical material must be sufficient to afford graduate students adequate experience in the various methods and types of anesthesia now commonly employed. It is expected that each graduate student should administer a minimum of 500 anesthetics a year, of which 400 should be general surgical in type. Residencies and fellowships organized in accordance with the foregoing requirements should provide systematic clinical and technical instruction supplemented by seminars, lectures and demonstrations on anatomic and other material.

2. CARDIOLOGY.—(See Medicine.)

3. COMMUNICABLE DISEASES.—(See Medicine.)

4. DERMATOLOGY AND SYPHILOLOGY.—In order to qualify for certification in dermatology and syphilology, graduate students who begin their training after Jan. 1, 1940, must complete three years of systematic instruction and two additional years of study or practice. The period of specialized training following internship shall include (*a*) not less than eighteen months of active experience in clinical dermatology and syphilology and (*b*) graduate study in the basic sciences of embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and physics as related to physical therapy.

Residencies and fellowships designed to meet these requirements should provide an organized course of instruction involving lectures, seminars, clinical demonstrations and laboratory assignments especially in histopathology, parasitology, mycology and immunology. To facilitate clinical and laboratory teaching it is essential that the department have ready access to an adequate supply of classified anatomic and pathologic material including histologic and lantern slides for demonstrations. Projection apparatus should be available and also facilities for clinical photography.

Since the practice of dermatology and syphilology is concerned largely with ambulatory patients, it is essential that an active outpatient service be available to furnish sufficient clinical material in the various subdivisions of the specialty. It is also desirable that hospital facilities be available and that graduate students be given an opportunity to observe the dermatologic manifestations of the acute contagious diseases. Ordinarily a minimum of 3,500 annual visits is considered essential in the dermatologic division and a similar number in syphilology.

5. EPILEPSY.—(See Psychiatry and Neurology.)

6. FRACTURES.—(See Surgery; also Orthopedics.)

7. GYNECOLOGY.—(See Obstetrics and Gynecology.)

8. MALIGNANT DISEASES.—The division of malignant diseases is largely a combination of services involving practically all the branches of medicine and surgery, including pathology and radiology. It is important, therefore, that competent staff physicians be assigned to all departments and that special facilities be available for histopathology, diagnostic roentgenology, operative surgery, therapeutic roentgenology and radium therapy.

The clinical material should be sufficient in kind and amount to enable graduate students to observe and study the various types of malignant diseases and the methods of therapy commonly employed. A teaching service should have approximately 350 inpatients a year and additional material in the outpatient tumor clinic.

Ordinarily, the training is general in type with assignments in clinical diagnosis, pathology, diagnostic roentgenology, surgery, therapeutic roentgenology and radium therapy. Courses in surgical and postmortem pathology, radiophysics and radiobiology are often included. In some instances the service is limited in scope and is utilized primarily as supplementary training in internal medicine, surgery, pathology, radiology or other specialties.

9. MEDICINE.—Requirements for certification in this specialty include an approved internship of at least twelve months, three years of special training and two additional years of practice in the field of internal medicine or its more restricted and specialized branches. The graduate training should include several months of properly supervised instruction in anatomy, physiology, biochemistry, pathology, bacteriology or pharmacology as related to medical specialties.

Residencies and fellowships should necessarily be organized on a broad basis to furnish instruction in the various specialties which combine to form the foundation of practice in internal medicine. Accordingly, the service should not be limited entirely to general medicine and its subdivisions of allergy, cardiology, gastro-enterology, metabolic diseases, contagion and tuberculosis but might well include a reasonable amount of instruction in the divisions of psychiatry and neurology, dermatology and syphilology, and pediatrics, now organized as independent specialties.

It should be taken into account, however, that not more than one year of instruction in the related medical specialties and basic sciences can be applied to the three year period of special training.

In institutions offering residencies and fellowships in general medicine, cardiology, communicable diseases or tuberculosis, emphasis should be placed on the educational features of the service and residents should receive regular instruction from members of the staff in methods of clinical study and diagnostic and therapeutic procedures. Of particular importance is the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis as well as a mature judgment and resourcefulness in therapy.

Under the supervision of qualified members of the staff the residents should assume individual responsibility in actual case management. They should also be required to correlate clinical studies with postmortem pathology, review medical literature and take an active part in weekly teaching rounds, departmental seminars and clinical-pathologic conferences. Instruction in the basic sciences may well be integrated with the clinical experience.

Training in tuberculosis should be of such a character that residents may become thoroughly familiar with the various phases of institutional service as well as the community aspects of tuberculosis control. This necessitates a well organized program of instruction with rotating assignments in the admitting department, infirmaries, convalescent and ambulatory wards and the outpatient clinics. Careful instruction should be provided in diagnosis, interpretation of roentgenograms, therapeutic procedures and general sanatorium care. It is particularly important that the residents become fully acquainted with the use of pneumothorax therapy and the technic of the initial induction as well as the subsequent refills. If a surgical department is maintained, the operative service may be combined with the general training in tuberculosis or it may form the basis of a separate residency in thoracic surgery.

It must be emphasized that residencies in tuberculosis are educational in character and that of the full time sanatorium staff only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

The clinical material must be adequate in kind and amount. In general medicine a minimum of 400 annual admissions is considered desirable, while in tuberculosis approximately 125 inpatients a year may be sufficient.

Residencies in cardiology and communicable diseases may well follow the general plan indicated. In cardiology a large part of the required teaching material is frequently supplied on a consultation basis and therefore the number of patients admitted directly to the department may not be an accurate index of the scope of the service. A well balanced service is essential for residency training in contagious diseases. Between 300 and 400 admissions a year may be considered sufficient, especially if most of the acute contagious diseases are well represented.

10. MENTAL DEFICIENCIES.—(See Psychiatry and Neurology.)

11. MIXED RESIDENCY (see definition in opening paragraph).—All hospitals approved for intern training are automatically accredited for mixed residencies which represent general assignments of at least one year duration following an approved internship. Other hospitals presenting a general service and an admission rate of at least 1,500 patients a year may likewise be certified if they conform to the general requirements for residency training.

12. NEUROLOGY.—(See Psychiatry and Neurology.)

13. NEUROSURGERY.—(See Surgery; also Psychiatry and Neurology.)

14. OBSTETRICS.—(See Obstetrics and Gynecology.)

15. OBSTETRICS AND GYNECOLOGY.—Candidates for certification in obstetrics and/or gynecology must in addition to other requirements have completed a year of internship and five years of practice including at least three years of special training in obstetrics and/or gynecology. After Jan. 1, 1942, the requirements for all candidates will consist of one year of approved internship followed by a minimum of seven years of practice including not less than three years of special training in obstetrics and/or gynecology.

Institutions offering residencies or fellowships in obstetrics and/or gynecology must provide surgical and obstetric facilities adequate for the clinical and teaching needs of the service. They should also furnish sufficient teaching material to afford graduate students a wide experience in clinical diagnosis, treatment, and technical and operative procedures. Ordinarily an admission rate of 400 patients a year is considered necessary for graduate training in obstetrics and a similar requirement applies to gynecology. In a combined service each division should furnish a corresponding amount of clinical material. Antepartum and follow-up clinics are also essential.

The graduate program should include the study of fundamental subjects, particularly obstetric and gynecologic pathology, anatomy, embryology and physiology. Primarily, however, the emphasis should be placed on clinical training in order that graduate students may receive ample instruction in the various phases of gynecologic and obstetric service—antepartum care, treatment of toxemias of pregnancy, management of normal and abnormal labor, technic of versions, breech extractions and instrumental delivery; diagnosis and treatment of the complications of labor, postpartum hemorrhage, puerperal infections; operative obstetrics and gynecology. Courses of instruction should include assignments in pathology, demonstrations on the manikin, departmental seminars, clinical-pathologic conferences, and teaching rounds. Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility especially toward the end of the graduate program.

16. OPHTHALMOLOGY.—To become certified in ophthalmology a candidate must have completed an internship of one year or its equivalent and a period of combined study, training and practice of not less than three years. The special training should include active clinical experience and graduate study of related basic sciences, particularly anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology and pharmacology. The candidate should have knowledge of the application of these subjects and their use in clinical ophthalmology especially in refraction, disorders of motility and binocular vision, perimetry, and in the use of the ophthalmoscope, retinoscope and slit lamp.

Residencies and fellowships should be organized in such a manner that on completion of the graduate program the aggregate of training should coincide with the foregoing requirements. There must be adequate equipment for diagnosis, therapy, refraction, operative procedures, and preferably additional facilities for dissection and experimental surgery. Histologic and pathologic material should be available for demonstration and individual study. The clinical facilities must be sufficient in kind and amount to afford graduate students an adequate experience in diagnosis, therapy and operative technic. Ordinarily a minimum of 150 admissions and 1,500 outpatient visits a year is considered necessary for graduate training in this specialty.

A systematic course of instruction should be offered with regular lectures and demonstrations in clinical and operative ophthalmology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative

work on their own responsibility, especially toward the end of the graduate program.

17. OPHTHALMOLOGY-OTOLARYNGOLOGY. — A joint service in ophthalmology and otolaryngology should fulfil the requirements listed under each department except that three years of training and experience should constitute the minimum time required.

18. ORTHOPEDIC SURGERY.—After Jan. 1, 1940, candidates for certification must have completed one year of internship, three years of concentrated instruction in orthopedic surgery and two years of subsequent practice in this special field. Knowledge of the basic sciences related to orthopedic surgery is also required.

As preliminary training the Council recommends one year of general surgery in addition to the internship. Surgical and orthopedic facilities must be satisfactory and clinical material sufficient to afford graduate students adequate experience in the correction of congenital and acquired deformities and in the treatment of fractures and other acute and chronic disorders which interfere with the proper function of the skeletal system and its associated structures.

Both hospital and outpatient facilities are desirable, and institutions offering graduate instruction should treat a minimum of 200 inpatients annually. Students should become thoroughly familiar with all methods of diagnosis and treatment, corrective exercises, physical therapy, operative procedures and the use of orthopedic appliances. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Graduate study is recommended in the fundamental sciences of anatomy, embryology, physiology, pathology, bacteriology and biochemistry. Clinical instruction should include teaching rounds and departmental conferences.

19. OTOLARYNGOLOGY.—The qualifications for special practice in this field include an approved internship and three years of graduate preparation, with at least one and preferably two years in recognized residencies or basic courses followed by private practice in otolaryngology.

Residencies and fellowships in otolaryngology should aim to provide adequate clinical and operative experience and additional opportunities, if possible, for graduate study in the related basic sciences of anatomy, embryology, histology, physiology, pathology, bacteriology and pharmacology.

Essential equipment for diagnosis and surgery should be available, including an audiometer and other special apparatus depending on the scope of the service. The department should further provide histologic and pathologic material for demonstrations and study and preferably facilities for experimental surgery and dissection of the head and neck. The clinical material should be sufficient in variety and amount to provide adequate training in the various divisions of the service, which might advantageously include the field of bronchoscopy. It is generally assumed that a graduate service would require a minimum of 400 admissions a year and at least 3,500 visits in the outpatient department.

The training should include a systematic course of instruction with lectures and demonstrations on clinical and technical subjects pertaining to the various phases of otolaryngology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

20. PATHOLOGY.—(See Department of Pathology, section IV.)

21. PEDIATRICS.—To qualify for certification in pediatrics a candidate must have completed five years of training and practice after graduation from an approved medical school. The requirements include an approved internship of one year, a service of two years in a pediatric center and two additional years of specialized study or practice. Although the training need not be continuous or in the same institution, it is desirable that the educational program be systematized in the form of residencies or fellowships of from one to three years' duration.

Clinical training should be obtained in general medical pediatrics, nutritional disorders, care of newborn infants, preventive pediatrics and outpatient clinics in the various departments of medical pediatrics. Correlative studies are recommended especially in contagion, well baby clinics, mental deficiencies, neurologic disorders of children and behavior problems. Sufficient time should also be devoted to the fundamental subjects of physiology, embryology, nutrition, growth and development.

In the wards and in the clinics the residents and fellows should be permitted to assume individual responsibility in diagnostic and therapeutic procedures and case management. They should actively participate in teaching rounds, clinical-pathologic conferences, departmental seminars and all other functions designed to improve the quality of the clinical and educational service. To supply an adequate amount and variety of teaching material a department should provide a minimum of approximately 200 annual admissions in general medical pediatrics.

22. PHYSICAL THERAPY.—The department should be under the direction of a physician qualified by training and experience in physical therapy. He should spend sufficient time in the department daily to supervise actually the work of the graduate students and technicians. Adequate space and apparatus should be furnished in the department for all phases of the work. The clinical material should be sufficient in kind and amount to enable the residents and fellows to observe and study all forms of treatment in physical therapy. Both inpatient and outpatient clinical material should be available.

The training should include (*a*) the study of certain fundamental subjects: physics of light, heat, electricity and mechanics; anatomy, with special reference to the peripheral nervous system, muscles, blood vessels, bones and joints; physical chemistry as related to physical therapy; physiology; (*b*) clinical and hospital training in the study and treatment of patients by various physical agents—light therapy, thermotherapy, fever therapy, hydrotherapy, electrotherapy and mechanotherapy. Emphasis should be placed on subjects related to physical therapy such as orthopedics, neurology, roentgenology, dermatology and general medicine.

A minimum of three years of special training is considered necessary for a physician to qualify as a specialist in physical therapy.

23. PLASTIC SURGERY.—(See Surgery.)

24. PSYCHIATRY AND NEUROLOGY.—Specialized training and experience of at least five years is essential for certification in neurology or in psychiatry. (To qualify in both fields a minimum of six years is required.) The requisite training consists of three full years of study after the general internship, and two or three additional years of practice or study in psychiatry or neurology or both. During the period of training a program of graduate studies should run concurrently with clinical instruction, covering the fundamentals of neuroanatomy, neuropathology, neurophysiology, psychobiology and psychopathology.

In institutions offering residencies and fellowships of from one to three years' duration, emphasis should be placed on the educational features of the service, and the residents should receive regular instruction from members of the staff in general orientation in the specialty, and diagnostic and therapeutic procedures and methods of clinical study as well as in the organization of ward services. Administrative details, progress notes, and contact with patients' relatives should be kept sufficiently within bounds so that the residents may employ their time in the study and treatment of neurologic and psychiatric disorders. Emphasis should be placed on the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis, as well as mature judgment based on knowledge of the natural history of the diseases and resourcefulness in therapy.

A rotating assignment in psychiatry is essential to give residents adequate experience on the admission services, on the infirmaries and wards, in the therapeutic divisions and in the outpatient clinics. A resident in neurology should have adequate contacts with psychopathic departments, general medicine, pediatrics, contagious disease and tuberculosis services so that he may become familiar with neurologic complications of general diseases, and he should also witness or assist at whatever neurosurgical operations are performed in the hospital. Teaching rounds, clinical and pathologic conferences and seminars are essential for clinical instruction in both fields.

The clinical material must be adequate in kind and amount. Between 200 and 400 admissions a year per resident is considered desirable. Smaller numbers prevent proper survey of the field of neuropsychiatric disorders; larger numbers are incompatible with adequate study of the patients admitted. Similar requirements apply in institutions where separate residencies are offered in the field of epilepsy and mental deficiencies, except that not more than one year of residency in either type of hospital will be considered as preparation for the specialty of psychiatry or neurology. It must be emphasized that residencies in psychiatric and neurologic hospitals are educational in character and that, of the full time psychiatric or neurologic staff of such hospitals, only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

25. RADIOLOGY.—(See Department of Radiology, section III.)

26. SURGERY.—The requirements for certification by the American Board of Surgery include an approved internship and at least five additional years of special training in surgery. During this period the entire time should be devoted to surgical training supplemented by sufficient experience in the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry.

Residencies and fellowships, organized in accordance with these requirements may be of from one to five years' duration but need not necessarily be confined to one institution. In aggregate, however, the training should coincide with the plan described. Individual residencies may be conducted in general surgery, fractures, neurosurgery, plastic surgery, thoracic surgery, traumatic surgery and other surgical divisions now organized as independent specialties. As preliminary training for residencies and fellowships in such specialties as neurosurgery, orthopedics, plastic surgery, thoracic surgery and urology the Council recommends one year of general surgery in addition to the internship.

All surgical departments can readily subscribe to the same general plan of training, although their scope of service may show considerable variation. Training in most of the surgical specialties is ordinarily limited to one division, but residencies in general surgery may well encompass the entire surgical field with the possible exception of ophthalmology and otolaryngology.

It is essential that adequate supervision be maintained by a competent department head responsible for the organization of the graduate program. He should personally direct the plan of clinical and operative training but may well rely on qualified assistants to supervise certain details of the educational service. Residencies and fellowships should emphasize careful training in diagnosis, preoperative therapy and postoperative care. This requires systematic bedside instruction, correlation of clinical and operative data, the study of gross and microscopic pathology, collateral reading, and accurate observations throughout the entire course of the disease. Supplementary instruction should be furnished in the form of departmental seminars, teaching rounds and clinical-pathologic conferences, usually on a weekly basis. It is also desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Surgical training should be obtained under the careful guidance and supervision of competent specialists. It should be sufficient in amount to insure a reasonable degree of technical proficiency and thus enable the residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Equipment and facilities for general and special surgery must be adequate to meet the needs of the service. The clinical material should likewise be sufficient to furnish adequate experience and training in diagnosis, therapy and operative technic. Accordingly it is suggested that general surgical services provide approximately 400 annual admissions per resident. The same amount may not be necessary for separate residencies in fractures, neurosurgery, plastic surgery, thoracic surgery and traumatic surgery, but even in the most limited of these specialties there should be at least 150 patients treated annually.

27. THORACIC SURGERY.—(See Surgery; also Tuberculosis.)

28. TRAUMATIC SURGERY.—(See Surgery.)

29. TUBERCULOSIS.—(See Medicine.)

30. UROLOGY.—For certification in urology a minimum of five years of special training and practice is required after the internship. This period of preparation should include an active clinical experience of at least eighteen months, graduate training in anatomy, physiology, pathology and other basic sciences, and not less than two years of additional practice.

As preliminary training for residencies and fellowships in urology, the Council recommends one year of general surgery in addition to the internship. Graduate instruction should be organized in accordance with the aforementioned requirements. It should be systematic and progressive in character to the end that adequate training may be obtained in diagnosis, therapy, cystoscopic examinations, pyelography and operative procedures, all under the supervision of a well qualified urologist.

Instruction in the fundamental branches can readily be integrated with the clinical experience. Particular emphasis should be placed on the study of pathology, and residents and fellows might well be required to examine both grossly and microscopically all urologic specimens removed during their term of service. Teaching rounds and departmental conferences are considered essential for systematic clinical instruction.

The department must provide adequate facilities for surgery and special urologic procedures.

Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

The clinical material should be sufficient in amount and variety to fulfil the teaching needs of the service. It is generally assumed that a minimum of 200 inpatients a year is necessary for advanced training in urology. This amount should be supplemented by outpatient material in cystoscopic and general urologic clinics. Access to gonorrheal clinics would also be of advantage.

X. RESIDENT-INTERN RELATIONSHIP

Those hospitals training both residents and interns should recognize their responsibility to both groups and not curtail too sharply the opportunities ordinarily given to interns by an excess of solicitude for the residents. The residents may, with profit, teach the interns, supervise their records and direct the treatments which interns administer. They should not, however, act so as to diminish the contact of the interns with the attending men or assume the supervisory or disciplinary functions of the staff intern committee.

XI. RECORDING OF CREDIT

A successful completion of a residency or fellowship is recorded in the biographic files of the American Medical Association. It is important, therefore, that all institutions approved for fellowships and residencies in specialties make annual reports to this office. Periods of service in institutions approved by the Council for fellowships and residencies in specialties are given full credit without further inquiry. Services in unapproved institutions are recorded as unclassified assignments.

Arrangements are now being made for an interchange of information between the Council and the examining boards responsible for the certification of specialists. In this way the study and appraisal of residencies and fellowships will lead to the formulation of lists approved by the Council and acceptable to the respective boards.

The specialty boards listed below have been approved by the Council in accordance with the following resolutions of the House of Delegates:

Resolved, That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such special examining boards as conform to the standards of administration formulated by the Council; and be it further

Resolved, That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association, including the publication of its Directory, in furthering the work of such examining boards as may be accredited by the Council.

American Board of Anesthesiology,
Paul M. Wood, Secretary-Treasurer,
745 Fifth Avenue, New York.

American Board of Dermatology and Syphilology,
C. Guy Lane, Secretary-Treasurer,
416 Marlboro Street, Boston.

American Board of Internal Medicine,
William S. Middleton, Secretary-Treasurer,
1301 University Avenue, Madison, Wis.

American Board of Obstetrics and Gynecology,
Paul Titus, Secretary-Treasurer,
121 South Highland Avenue, Pittsburgh.

American Board of Ophthalmology,
John Green, Secretary,
6830 Waterman Avenue, St. Louis.

American Board of Orthopaedic Surgery,
Fremont A. Chandler, Secretary,
6 North Michigan Avenue, Chicago.

American Board of Otolaryngology,
William P. Wherry, Secretary,
107 South Seventeenth Street, Omaha.

American Board of Pathology,
Frank W. Hartman, Secretary-Treasurer,
2799 West Grand Boulevard, Detroit.

American Board of Pediatrics,
C. Anderson Aldrich, Secretary,
722 Elm Street, Winnetka, Ill.

American Board of Psychiatry and Neurology,
Walter Freeman, Secretary,
1028 Connecticut Avenue N.W., Washington, D. C.

American Board of Radiology,
Byrl R. Kirklin, Secretary,
102 Second Avenue S.W., Rochester, Minn.

American Board of Surgery,
J. Stewart Rodman, Secretary,
225 South Fifteenth Street, Philadelphia.

American Board of Urology,
Gilbert J. Thomas, Secretary,
1009 Nicollet Avenue, Minneapolis.

XII. ADMISSION TO THE APPROVED LIST

Institutions that wish to be approved for residencies or fellowships should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago. Application blanks will be furnished and arrangements made for a personal visit of inspection by a member of the Council's staff. Approval is based on full compliance with the foregoing standards. Recognition may be withdrawn whenever it appears that the institution no longer conforms to these essentials or when the positions remain vacant for a period of two or more years.

Essentials for Approved Examining Boards in Specialties

I. ORGANIZATION

1. A special examining board to be approved by the Council should represent a well recognized and distinct specialty of medicine.

2. It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.

3. It should be incorporated.

4. A special board should:

   a. Determine whether candidates have received adequate preparation as defined by the board.

   b. Provide a comprehensive test of the ability and fitness of such candidates.

   c. Certify to the competence of those physicians who have satisfied the requirements of the board.

II. DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

1. Internal Medicine
2. Surgery
3. Pediatrics
4. Obstetrics and Gynecology
5. Ophthalmology
6. Otolaryngology
7. Dermatology and Syphilology
8. Neurology and Psychiatry
9. Urology
10. Orthopedic Surgery
11 Radiology
12. Pathology
13. Anesthesiology

III. QUALIFICATION OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

A. General Qualifications.

1. Satisfactory moral and ethical standing in the profession.
2. A license to practice medicine.
3. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies should not be required.

B. Professional Education.*

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same Council.

C. Special Training.**
(To be effective not later than Jan. 1, 1942.)

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.
2. This period of specialized preparation shall include,
   a. intensive graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question;
   b. an active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the Council as competent in the specialty;
   c. examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.
3. An additional period of not less than two years of study and/or practice.

IV. WITHDRAWAL

For reasons which are deemed sufficient, in the judgment of the Council on Medical Education and Hospitals, the recognition extended by the American Medical Association to holders of certificates from special examining boards may be withdrawn.

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* Candidates who submit credentials from institutions outside of the United States and Canada should be required to pass the examination of the National Board of Medical Examiners.

** Candidates whose special training has been received outside of the United States and Canada should submit credentials satisfactory to the examining boards.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

The death of Dr. J. C. Flippin of Charlottesville, Va., a member of the Council on Scientific Assembly and of the House of Delegates, occurred on Feb. 16, 1939. Dr. Flippin had served as a member of the Council since 1936 and had represented the Medical Society of Virginia in the House of Delegates of the American Medical Association since 1934. As dean of the University of Virginia Department of Medicine and through constant attendance at meetings of important professional societies and active participation in the affairs of this Association and of other medical organizations, Dr. Flippin enjoyed a wide acquaintance with the physicians of the United States and was held in high esteem by all who were privileged to know him and especially by those whose privilege it was to be associated with him in some official capacity. He won the respect and affection of the members of this Council because of

his courteous bearing, his earnestness of purpose, his tolerance of the opinions of others, his readiness to carry his full share of responsibility, his devotion to duty and his loyalty to the highest professional ideals and to the organizations in whose service he was engaged.

The usual meetings of the Council on Scientific Assembly were held during the annual session at San Francisco, and the regular interim meeting of the Council was held in Chicago on Dec. 2, 1938, at which time the annual conference of the Council with the section officers was also held.

PROGRAM CHANGES

As reported to the House of Delegates at the San Francisco session, consideration has been given by the Council to the possibility of effecting changes in the nature of the programs of the scientific sections and the General Scientific Meetings. The Council has had the highly valued suggestions and advice of the section secretaries with respect to this matter, and it will be noted that certain innovations in the scientific programs are being instituted at this session.

A new feature of the program of the General Scientific Meetings will be panel discussions on Tuesday afternoon. The program at that time will be divided into medical and surgical sessions. The program of the medical session will be devoted to a discussion, to be directed by a moderator, which will deal with etiology, therapeutic methods and indications and public health aspects of pneumonia. The program of the surgical session will be given over to a discussion of diseases of the biliary tract, dealing with physiology, differential diagnosis and other important phases of this general subject and will be presented in the same manner as that of the medical session.

For many years it has been an unwritten rule observed by those in charge of the preparation of scientific programs that physicians residing in the city in which an annual session of the American Medical Association is held should not participate as contributors of papers. The Council on Scientific Assembly and the section officers have felt that the operation of this rule has at times prevented the presentation of papers of significant importance by physicians especially well qualified to discuss topics of general interest. An important innovation in this year's program involves the presentation of a group of papers in the program of the General Scientific Meetings by local physicians.

In some of the section meetings at this annual session the method of presentation of the programs will be changed to some extent. At least one section will devote one of its sessions to a panel discussion, and in certain instances two sections have combined their sessions on Friday into symposiums. It is proposed that experiments somewhat similar to those that are being undertaken this year be continued with the view of developing scientific programs of more general interest and in such manner as to afford opportunity for greater dissemination of helpful information and perhaps for greater participation in discussions by members of the sections and by those who attend the General Scientific Meetings.

The official program of the St. Louis session is submitted as a part of the report of the Council on Scientific Assembly. The programs of the sections are prepared by the officers of the sections, while the program of the General Scientific Meetings has been prepared under the direction of the chairman of the Council on Scientific Assembly.

At a proper time the Council will submit to the House of Delegates nominations for Affiliate Fellowship.

The members of the Council desire to make grateful acknowledgment of the helpful assistance received at the hands of the officers and especially of the secretaries of all the scientific sections.

Respectfully submitted.

JAMES E. PAULLIN, Chairman.
J. GURNEY TAYLOR.
A. A. WALKER.
CLYDE L. CUMMER.
ROCK SLEYSTER, President-Elect. } Ex officio.
MORRIS FISHBEIN, Editor, THE JOURNAL. } Ex officio.
OLIN WEST, Secretary. } Ex officio.

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 noon mountain time, 11 a. m. Pacific time).

Changes in this time will be necessary to take into consideration daylight saving time. Announcement of this change will appear in advance in THE JOURNAL. Owing to network conflicts the Chicago broadcast does not occur at 1 p. m. Wednesday but there is a rebroadcast from a recording over Station WENR at 8 o'clock each Monday evening. The program broadcast each Monday is identical with the network program of the preceding Wednesday.

It has been necessary to curtail the length of the series by omitting the last two programs, which would have been broadcast June 14 and June 21. The series, therefore, will end with the broadcast scheduled for June 7.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

April 12. Learning to Live.
April 19. "Accidents Don't Just Happen—"
April 26. What Is a Doctor?

WOMAN'S AUXILIARY

Michigan

The Kalamazoo auxiliary distributed food to needy families in the community at Christmas.

Mrs. P. L. Thompson gave a talk on her recent world tour at the November meeting of the auxiliary to the Kent County Medical Society, which was attended by 158 members. The auxiliary has placed 172 six month subscriptions to *Hygeia* in the county rural schools and is collecting all printed articles pertaining to medical legislation. Dr. Ruth Herrick, chairman of the section on dermatology and syphilology of the Michigan State Medical Society, spoke on "The New Social Hygiene Program" at a recent meeting of the auxiliary, discussing "Shadow on the Land" by Surgeon General Parran.

Dr. Claire E. Straith spoke on the projects of the auxiliary to the Washtenaw County Medical Society at the Michigan Union, Ann Arbor, November 8. Members of the county medical society joined the auxiliary, hearing Dr. Straith speak on plastic surgery.

The auxiliary to the Saginaw County Medical Society has given subscriptions to *Hygeia* to twenty rural schools.

Oklahoma

The Pontotoc County auxiliary was addressed January 18 by Mrs. E. M. Gullatt on socialized medicine.

The women's auxiliary to the Woodward County Medical Society meets on alternate months with the doctors and shares the program. Dr. Coyne Campbell, Oklahoma City, spoke on psychoanalysis and Dr. Johnson of the staff of the Oklahoma State Hospital for Insane reviewed results of insulin treatment of dementia praecox patients, December 14.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Short Course in Internal Medicine. — The division of medical extension, Tulane University of Louisiana, New Orleans, in cooperation with the Medical Association of the State of Alabama, opened a course in internal medicine in Tuscaloosa April 3. Sessions will be held April 10, 24, May 1, 8 and 15. The instructors are Drs. Virgil P. Sydenstricker, professor of medicine, University of Georgia School of Medicine, Augusta, and Julius L. Wilson, associate professor of medicine at Tulane. Dr. Sydenstricker will discuss "Nutritional Diseases," "Diabetes," and "Nephritis," and Dr. Wilson, "Cardiac Diseases," "Acute Infections" and "Pulmonary Tuberculosis."

State Medical Meeting in Montgomery.—The Medical Association of the State of Alabama will hold its annual session at the Whitley Hotel, Montgomery, April 18-20, under the presidency of Dr. Seale Harris, Birmingham, and with the Montgomery County Medical Society acting as host. Out-of-state speakers will include:

Dr. John S. Turberville, Century, Fla., Prostatic Diseases from the Standpoint of the General Surgeon.
Dr. Giles S. Bryan, Amory, Miss., Reducing the Pneumonia Death Rate.
Dr. Edward N. DeWitt, Bridgeport, Conn., Intra-Ocular Tumors.
Dr. Tinsley R. Harrison, Nashville, Tenn., The Therapeutic Approach to High Blood Pressure.
Dr. Virgil P. W. Sydenstricker, Augusta, Ga., The Changing Concepts of Deficiency Diseases.
Dr. Clyde Brooks, New Orleans, Blood Sedimentation.
Dr. Adrian Taylor, Clifton Springs, N. Y., Clinical Aspects of Thyroid Disease.
Dr. William H. Anderson, Booneville, Miss., The Community Hospital.
Dr. Maxwell E. Lapham, New Orleans, Postgraduate Study.

Dr. George T. Pack, New York, will deliver the Jerome Cochran Lecture Wednesday morning on "Recent Advances in the Radiation Therapy of Cancer." There will be a symposium on hospitalization and medical care of the indigent Tuesday morning. Wednesday afternoon a feature will be the unveiling of a statue to James Marion Sims at which the speakers will be Dr. Marye Y. Dabney, Birmingham, on "James Marion Sims, 'The Father of Modern Gynecology'"; Mrs. Marie Bankhead, director, department of archives and history of the state of Alabama, Montgomery, "James Marion Sims, 'Benefactor of Womankind'," and Gov. Frank M. Dixon, who will accept the monument. A public session will be held Wednesday evening on "Medical Education in Alabama." The fourteenth annual meeting of the woman's auxiliary will be at the Whitley April 18-19.

ARKANSAS

Society News.—The Sebastian County Medical Society was addressed February 14 by Dr. Raymond T. Smith, Fort Smith, on "The Appearance of the Ear Drum in Certain Middle Ear Conditions."——At a meeting of the Lawrence County Medical Society February 14 Drs. John B. Elders, Walnut Ridge, discussed syphilis and Charles C. Townsend, Walnut Ridge, "Medicine as It Is or State Medicine?"——The Benton County Medical Society was addressed in Rogers February 9 by Drs. Miles E. Foster on "Sedimentation Rate in Gynecology"; Sidney J. Wolfermann, "Socialized Medicine," and William R. Brooksher, "Roentgen Ray Treatment of Infections." All are of Fort Smith. The society was addressed in Bentonville March 9 by Drs. Jesse D. Riley, State Sanatorium, on "Collapse Therapy" and Clyde L. McNeil, Rogers, "Sulfanilamide."

CALIFORNIA

Bequest to Library.—The income from a fund of $10,000 will be paid to the library of the Los Angeles County Medical Association, Los Angeles, in accordance with a stipulation in the will of the late Dr. Walter Jarvis Barlow. The name of Dr. Barlow has been prominently associated with the history of the library. In 1906 he erected a building to house what was then known as the Hendryx Medical Reference Library. In 1907 a building was opened in the name of the Barlow Medical Library Association. In 1932 negotiations were started to transfer the library to the county medical association, which in 1934 opened its permanent home, providing quarters for the library. The entire collection is known as the Library of the Los Angeles County Medical Association.

CONNECTICUT

Society News. — Dr. Emil Novak, Baltimore, recently addressed a public meeting sponsored by the Medical Information Bureau of the Hartford Medical Society and the Hartford County Medical Association on "Cancer: A Message of Hope."

Changes in Health Officers. — The *Connecticut Health Bulletin* announces the following changes in health officers:

Dr. Cyrus E. Pendleton, appointed in Colchester to succeed the late Dr. Edward J. Howland.
Dr. Harold A. Howard of Wethersfield to succeed the late Dr. Edward G. Fox.
Dr. Robert C. Sellew of Canaan.
Dr. Charles K. Skreczko Jr. of Shelton to succeed Dr. William S. Randall.
Dr. Joseph S. Stygar of Derby to succeed Dr. Thomas F. Plunkett.
Dr. John M. Renehan of Ansonia to succeed Dr. Louis Howard Wilmot.
Dr. George E. Roch of Willimantic to succeed Dr. Reuben Rothblatt.

DISTRICT OF COLUMBIA

University News.—Reuben L. Kahn, D.Sc., Ann Arbor, Mich., delivered a series of lectures on "Interpreting the Serology of Syphilis" at the U. S. Naval Medical School, Naval Medical Center, Washington, March 21-24.

Public Health Forum.—Georgetown University recently conducted its second annual public health forum. Dr. Ella Oppenheimer opened the series of lectures February 2 with a discussion of "Child Welfare." Other speakers were Dr. Custis Lee Hall, February 9, on "Crippling Conditions in Children"; J. Edward Routh, Ph.D., February 16, "Problem Children," and Fred R. Sanderson, February 23, "Common Household Poisons." The series ran six weeks.

GEORGIA

State Medical Meeting at Atlanta.—The ninetieth annual session of the Medical Association of Georgia will be held at the Biltmore Hotel, Atlanta, April 25-28, under the presidency of Dr. Grady N. Coker, Canton, and with the Fulton County Medical Society acting as host. The presidential address will be entitled "Modern Trends of Medical Practice." The speakers will include:

Dr. Hartwell Joiner, Gainesville, Prophylactics and the Common Cold.
Dr. Carl C. Garver, Atlanta, Pneumolysis as an Adjunct of the Treatment of Pulmonary Tuberculosis.
Dr. Ernest F. Wahl, Thomasville, Effect of Nervous Influences on Nutrition.
Dr. Joseph Yampolsky, Atlanta, Use of Sulfanilamide in Routine Pediatric Practice.
Dr. Harrison H. Shoulders, Nashville, Tenn., Some Phases of Medical Economics.
Hon. Robert F. Maddox, Atlanta, chairman, state board of health, The Social and Economic Value of Health.
Dr. Crawford F. Barnett Jr., Atlanta, Chronic Gastritis.

Dr. John S. Lundy, Rochester, Minn., will deliver the Abner Wellborn Calhoun Lecture Wednesday on "Suggestions for the Use of Anesthetics and Analgesics in General Medical Practice." A symposium on industrial surgery will be held the same day and one on cancer Thursday. Entertainment will include the annual luncheon of the Georgia Radiological Society, and the annual dinners of the alumni of the medical schools of Emory and Georgia universities. Speakers before the woman's auxiliary, which will meet April 25-27, will include Drs. William H. Myers, Savannah, president-elect of the state medical association, on "Evolution in the Practice of Medicine."

ILLINOIS

Society News.—Dr. Lawrence F. Weber, Chicago, discussed common diseases of the skin before the Lawrence County Medical Society in Lawrenceville April 5.——The Will-Grundy County Medical Society was addressed in Joliet by Dr. Stanley Gibson, Chicago, April 7 on acute conditions of the abdomen in children.——At a meeting of the Madison County Medical Society, Alton, April 7, Dr. John S. Coulter, Chicago, discussed the "Home Treatment of Chronic Arthritis."

Chicago

Institute for Negro Health Workers.—The Tuberculosis Institute of Chicago and Cook County will conduct a two day institute for Negro health workers in cooperation with the National Tuberculosis Association April 17-18 at the Y. M. C. A., Wabash Avenue and Thirty-Eighth Street. The program will cover the following four themes: A modern con-

cept of tuberculosis, what it is, how it develops; best methods for controlling tuberculosis, including case-finding and hospitalization; the organized campaign against tuberculosis with special stress on Negro organization, and the possibility of controlling tuberculosis.

Society News.—Dr. Arthur Steindler, Iowa City, among others, addressed the Chicago Orthopedic Society and the Chicago Roentgen Society March 9 on "Compensation and Derotation in the Treatment of Scoliosis."——Dr. Frances Hannett discussed "What Constitutes a Psychiatric Problem in General Practice" before the Chicago Council of Medical Women March 22 and Dr. Adelaide M. Johnson, "Treatment of Children's Problems with Special Reference to Play Therapy."——The Chicago Society of Internal Medicine was addressed March 27, among others, by Drs. Heinrich Necheles, Rudolf Schindler and Rubin L. Gold on "Surgical Gastritis: A Study on the Genesis of Gastritis Associated with Ulcers."——Dr. Leo K. Campbell gave a public lecture at the Chicago Woman's Club March 8 under the auspices of the Chicago Medical Society on "Eat, Drink and Grow Fat."——The Chicago Pediatric Society was addressed March 21 by Drs. Adrian D. M. Kraus on "Periodic Paralysis"; Eugene T. McEnery, "Epidermoid Cysts of the Spleen," and Lloyd E. Harris, "Bromide Intoxication in a Child Four Years of Age."——At a meeting of the Chicago Ophthalmological Society March 20 the speakers were Dr. John G. Bellows and Herman Chinn, Ph.D., on "Distribution of Sulfanilamide in the Eye"; Drs. Bertha A. Klien, "Concerning the Dictyoma Retinae" and Samuel S. Blankstein, Milwaukee, "Comparison of Visual Acuities."

INDIANA

Tri-State Meeting.—The annual meeting of the Northern Tri-State Medical Association, including Michigan, Ohio and Indiana, will be held at the Hotel Oliver, South Bend, April 11. The speakers will include:

Dr. Albert C. Furstenberg, Ann Arbor, Mich., Nasal Accessory Sinus Disease in the General Practice of Medicine.
Dr. Daniel P. Foster, Detroit, Newer Concepts of Diabetes Mellitus.
Dr. Charles G. Johnston, Detroit, Physiologic Implications in the Management of Intestinal Obstruction.
Dr. David Edwin Robertson, Toronto, Fractures in Children.
Dr. Robert M. Moore, Indianapolis, Diagnosis and Treatment of Heart Disease.
Dr. A. Jerome Sparks, Fort Wayne, Ind., Calculi in the Upper Urinary Tract.
Dr. Frank C. Walker, Indianapolis, Relation of Cervical Lesions to Carcinoma of the Cervix Uteri.
Dr. Harold N. Cole, Cleveland, Relapse in Syphilis: Its Importance in Diagnosis, the Public Health Aspect, and Its Treatment.
Dr. Waldo E. Nelson, Cincinnati, Treatment of Diabetes Mellitus in Children.
Dr. Bruce K. Wiseman, Columbus, Ohio, The Cytolytic Functions of the Spleen in Relation to the Blood Diseases.

IOWA

Society News.—Dr. Soma Weiss, Boston, will discuss "Cardiac Asthma and Associated Syndromes" before the Linn County Medical Society, Cedar Rapids, April 24.——Dr. Morris Edward Davis, Chicago, addressed the Black Hawk County Medical Society, Waterloo, March 14 on "Endocrine Therapy in Obstetrics and Gynecology."

Grant to Study Infant Nutrition.—Dr. Philip C. Jeans, professor of pediatrics, State University of Iowa College of Medicine, Iowa City, has received a grant of $7,500 from the Borden Company for the continuation of his investigations in infant nutrition. The grant was made available through the Council for Pediatric Research of the American Academy of Pediatrics.

KANSAS

Society News.—Dr. James Roscoe Miller, Chicago, addressed the Shawnee County Medical Society February 6 on "Diagnosis and Treatment of Coronary Occlusion."——The Wyandotte County Medical Society was addressed in Kansas City February 21 by Drs. Eugene D. Liddy Jr. and Frederic A. Speer on asthma and diagnosis of fever in infancy, respectively.

LOUISIANA

Instruction for Medical Reserve Officers.—The department of graduate medical studies of Tulane University of Louisiana School of Medicine, New Orleans, will conduct a two weeks course of instruction for medical reserve officers of the fourth corps of the U. S. Army April 11-22.

Society News.—Dr. Charles E. Galloway, Evanston, Ill., discussed "Pathology of the Cervix" before the Orleans Parish Medical Society and the New Orleans Gynecological and Obstetrical Society March 13. The parish medical society was addressed February 27 by Drs. Carlo J. Tripoli on "Acute Lymphocytic Choriomeningitis" and Rudolph Matas, "Recent Observations of Military Surgery in the Spanish War."——Dr. Clarence P. May discussed "Medical Psychology" before the Rapides Parish Medical Society, Alexandria, February 6.

MARYLAND

Society News.—A symposium on marihuana was presented before the Baltimore City Medical Society February 3 by Rowland K. Adams, judge, supreme bench of Baltimore City; Dr. Manfred S. Guttmacher, chief medical officer of the supreme bench, and Mr. H. J. Wollner, consulting chemist of the treasury department, bureau of narcotics, Washington, D. C. At a meeting of the society March 3, the speakers included Drs. Henry J. Walton on "What Can Be Done for Patients Suffering from Far Advanced Bone Metastasis," and Richard T. Shackelford, "Peritoneoscopy, Its Uses and Limitations."——Dr. Thomas Archibald Malloch, librarian of the New York Academy of Medicine, gave an illustrated lecture on William Osler before the Osler Historical Club, Baltimore, March 21.

MASSACHUSETTS

The Cutter Lecture.—Dr. Frederick F. Russell, professor of preventive medicine and epidemiology, emeritus, Harvard Medical School, Boston, will deliver the annual Cutter Lecture in Preventive Medicine at the school April 17. His subject will be "The History of Yellow Fever as an Illustration of Methods of Study and Control of Virus Diseases."

Health Education Institute.—The New England Health Education Association, in cooperation with the departments of education, state departments of health and tuberculosis associations of the New England states, will hold an institute on health education April 21-22 at the William Barton Rogers Building, Massachusetts Institute of Technology, Cambridge.

MICHIGAN

Society News.—Dr. Jacob P. Greenhill, Chicago, discussed "The Use of Androgens in Gynecology" before the Detroit Obstetrical and Gynecological Society March 7.——Dr. William P. Tew, London, Ont., discussed "Diagnosis and Treatment of Hemorrhage Late in Pregnancy" before the Genesee County Medical Society in Flint February 8.——Dr. Morris Edward Davis, Chicago, addressed the Berrien County Medical Society in Benton Harbor March 16 on "Present Day Diagnosis and Treatment of Hemorrhage Late in Pregnancy."

Venereal Disease Director Appointed.—Dr. Thomas E. Gibson, Paw Paw, formerly director of the Van Buren County Health Department, has been appointed director of the venereal disease division of the Michigan State Department of Health. Previously Dr. Gibson was director of the Genesee County Health Department and of the Isabella County Health Department and in 1931 he served with the state department of health for six months on a Rockefeller Foundation scholarship. He graduated at the College of Medical Evangelists, Loma Linda-Los Angeles, in 1931.

Graduate Programs.—The attending staff of Receiving Hospital, Detroit, has arranged the programs of the monthly staff meetings for the remainder of this academic year as a continuing graduate activity, according to the Detroit *Medical News.* All former interns of the hospital are invited. The speakers at the meeting March 8 were Warren O. Nelson, Ph.D., professor of anatomy, Wayne University School of Medicine, Detroit, on "Physiology of the Ovarian Hormones"; Oliver Kamm, scientific director of research, Parke, Davis & Co., "The Standardization and Chemical Relationships of the Ovarian Hormones," and Dr. Ward F. Seeley, professor of gynecology and obstetrics at Wayne, "Hormonal Treatment of Menstrual Disorders."

Personal.—Dr. George McL. Waldie has resigned as medical superintendent of the Copper Country Sanatorium, Houghton, effective on the appointment of a successor. He has held the position for twelve years.——Dr. Robert B. Harkness, Hastings, director of the Barry County health department, was elected president of the State Council of Health at its advisory session with the state health commissioner in Lansing recently, succeeding Ura G. Rickert, D.D.S., Ann Arbor, who died Oct. 22, 1938. P. C. Lowery, D.D.S., Detroit, vice president of the American Dental Association, has been appointed a member of the council to serve the unexpired term of Dr. Rickert, which ends June 30, 1941.——Dr. Thomas Y. Ho, St. Johns, was recently reelected secretary of the Clinton County Medical Society for the sixteenth consecutive time.

MINNESOTA

Special Lecture.—Dr. Ludvig Hektoen, executive director, National Advisory Cancer Council, U. S. Public Health Service, Washington, D. C., will present the annual Minnesota Cancer Institute Lecture in Minneapolis April 17. His subject will be "Advances in the Knowledge and Control of Cancer."

State Radiologic Meeting.—The Minnesota Radiological Society held its spring meeting in St. Paul, March 18. The speakers included:

Ancel Keys, Ph.D., and Dr. Hymer L. Friedell, Minneapolis, Roentgen Kymographic Studies in Cardiac Physiology.
Drs. Harry M. Weber and Clarence Allen Good Jr., Rochester, A Series of Interesting Duodenal Lesions.
Drs. Clarence P. Truog and Raymond E. Buirge, Minneapolis, Bone Atrophy: Report of an Unusual Case.
Dr. Henning M. Berg, Bismarck, N. D., The Practice of Radiology in Sweden.

A symposium on radiation therapy of neoplasm of the stomach was presented by Drs. Arthur U. Desjardins, Rochester; Chauncey N. Borman, Cyrus O. Hansen and Russell W. Morse, Minneapolis; Edward Schons, St. Paul, and Wilhelm Stenström, Ph.D., Minneapolis. At the dinner, Drs. John L. McKelvey spoke on "Medical Experiences in China," and Harry M. Weber, Rochester, "Observations on Roentgenology in Europe."

MISSISSIPPI

Society News.—At a meeting of the Pike County Medical Society in McComb January 5 Drs. Emile F. Naef and Conrad G. Collins, New Orleans, spoke on "First Infection Type Tuberculosis in Childhood" and "Causes and Treatment of Vaginitis" respectively.——A joint meeting of the faculty of the University of Mississippi and the Northern Mississippi Medical Society was addressed in Oxford January 19 by Drs. Paul H. Harmon, Springfield, Ill., on "Suppurative Arthritis of the Hip"; Samuel W. Banks, Chicago, "The Intervertebral Destruction in Relation to Back Pain" and Edward L. Compere, Chicago, "Methods of Treatment for Fractures of the Neck of the Femur."

MISSOURI

Lectures on Pediatrics and Obstetrics.—The state board of health, the committee on maternal welfare of the Missouri State Medical Association and the extension service of the University of Missouri College of Agriculture are sponsoring lectures on obstetrics and pediatrics throughout the state.

Society Condemns Smoke Nuisance.—The St. Louis Medical Society recently adopted a resolution condemning the smoke nuisance in St. Louis as a danger to health and requesting city authorities to take immediate steps to "abolish the menace," newspapers reported. The resolution adopted by the society incorporates recent resolutions of the Ear, Nose and Throat Club, the Trudeau Society and the St. Louis Pediatric Society expressing opinions on the subject.

Retires as Superintendent of Barnes Hospital.—Dr. Louis H. Burlingham has retired after twenty-two years' service as superintendent of Barnes Hospital, St. Louis, effective April 1. According to *Modern Hospital,* Dr. Burlingham submitted his resignation a year ago, but the board of trustees of the hospital declined to accept it, granting him instead a leave of absence in the hope that he would regain his health. Dr. Burlingham graduated at Johns Hopkins University School of Medicine, Baltimore, in 1906.

Society News.—Round table discussions form a new type of program recently introduced at meetings of the St. Louis Medical Society. The subject "Anemias—Clinical and Laboratory Diagnosis" was discussed February 24 with Dr. Goronwy O. Broun as the leader; "Anemia—Modern Methods of Treatment" was the theme March 3 with Dr. Lawrence D. Thompson as the leader.——Dr. Timothy Leary, Boston, discussed "The Most Important Professional Disease: Coronary Sclerosis" before the Kansas City Academy of Medicine February 17.

MONTANA

Personal.—Dr. Joseph L. Richards, Polson, has been reappointed county physician and secretary of the board of health of Lake County.

Society News.—Dr. Roy V. Morledge, Billings, was elected president of the Montana Academy of Ophthalmology and Oto-Laryngology at its semiannual meeting February 6 and Dr. Ashley W. Morse, Butte, was reelected secretary.

NEW YORK

State Medical Meeting at Syracuse.—The annual meeting of the Medical Society of the State of New York will be held April 24-27 at the Hotel Onondaga and the Hotel Syracuse, Syracuse, under the presidency of Dr. William A. Groat, Syracuse. Two general sessions will be devoted to discussions of "Emergencies—Their Recognition and Treatment" and "Chronic Diseases—Their Early Recognition." In the first session the speakers will be:

Dr. Thew Wright, Buffalo, The Acute Abdomen.
Dr. Edward A. Schumann, Philadelphia, Obstetrical Emergencies.
Dr. Orman C. Perkins, Brooklyn, Acute Cerebral Emergencies.
Dr. Edward C. Reifenstein, Syracuse, Cardiac Emergencies.

In the second general session addresses will be made by:

Dr. Samuel A. Levine, Boston, Early Evidence of Cardiovascular Disease.
Dr. Francis Carter Wood, New York, Early Diagnosis of Cancer (the first A. Walter Suiter Lecture).
Dr. James Alexander Miller, New York, Early Diagnosis and Treatment of Pulmonary Tuberculosis.
Dr. Clarence O. Cheney, White Plains, Early Recognition of Mental Diseases and Their Treatment.

Guest speakers who will address the sections will include:

Dr. Thomas E. Jones, Cleveland, Surgical Treatment of Diverticulitis.
Dr. Harry E. Bacon, Philadelphia, Extrarectal Metastatic Malignancy Simulating Primary Carcinoma of the Rectum.
Dr. Trygve Gundersen, Boston, Diagnosis and Treatment of Diseases of the Cornea.
Dr. Maurice B. Strauss, Boston, Etiology and Treatment of True Toxemia of Pregnancy.
Dr. Harold R. Griffith, Montreal, Canada, Management of Complications Arising During Cyclopropane Anesthesia.
Drs. Bernard L. Wyatt, Robert A. Hicks and Harry E. Thompson, Tucson, Ariz., Chronic Arthritis—Differential Diagnosis—Special Treatment Methods: Medical, Orthopedic, Physical Therapy.
Dr. Donald Guthrie, Sayre, Pa., The Advantages of Silk in General Surgery.

The annual banquet will be at the Hotel Syracuse Tuesday evening April 25. Addresses will be made by Mr. Alexander Woollcott, New York; Drs. Logan Clendening, Kansas City, Mo.; William A. Groat, Syracuse, president of the society, and Terry M. Townsend, New York, president-elect.

New York City

The Salmon Lectures.—The seventh series of Thomas William Salmon Memorial Lectures will be delivered by Dr. Edward A. Strecker, chairman of the department of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, at the New York Academy of Medicine April 14, 21 and 28. Dr. Strecker's general subject will be "Beyond Clinical Frontiers," and the individual titles, "The Massive Retreat from Reality"; "Crowd-Mindedness" and "Threats to Our Culture."

Long Island College Alumni Meeting.—The Alumni Association of the Long Island College of Medicine will hold its annual Alumni Day April 25. The morning program will include addresses by Drs. Frederick Schroeder on "Ancient and Modern Methods of Poisoning"; William A. Jewett, "Treatment of Pelvic Malignancies at the Long Island College Hospital" and Samuel Potter Bartley, "Reconstruction of the Arm and Hand." At a luncheon at the hospital Mr. Tracy Voorhees, president of the college board of regents, will speak on "A Layman's Thoughts on the Modern Problems Facing the Medical Profession," and Dr. Nathaniel P. Rathbun, "Some of the Problems Which the Medical Profession Is Facing Today." The annual banquet will be held in the evening at the Columbus Club with Drs. Frank L. Babbott, president of the college, John Sturdivant Read and Cassius H. Watson as the speakers.

Health Calendar for the World's Fair.—Observances of special days have been scheduled by several organizations for the period of the New York World's Fair. A recent announcement includes:

May 1-8, National Child Health Week.
May 9, Dental Society of New York State.
May 12, National Hospital Day and Nurses' Day.
May 16, American Medical Association.
May 17, Red Cross Day.
May 19, Tenth International Congress of Military Medicine and Pharmacy.
May 31, Medical Society of the State of New York.
June 3, American Academy of Pediatrics.
June 4, American Society for the Hard of Hearing.
June 18, New York City Health Department.
June 23, School Health Day.
June 27, County Medical Society Day.
October 21, National Health Day.

Society News.—At a meeting of the Medical Society of the County of New York February 27 a symposium on the proposed national health program was presented by Drs. Martha M. Eliot, Washington, D. C., John P. Peters, New Haven,

Conn., Samuel J. Kopetzky and Frederic E. Elliott.——Drs. John L. Rice, health commissioner, and Stanley R. Woodruff, Jersey City, N. J., addressed the Harlem Medical Association March 1 on "The Role of the Private Physician in Public Health" and "Management of Stones in the Urinary Tract" respectively.——Dr. Herbert Willy Meyer addressed the New York Surgical Society March 1 on "Perforations of the Gastrointestinal Tract."——Dr. Louis Lichtenstein addressed the New York Pathological Society February 23 on "Pathologic Findings Following Therapeutic Hyperthermia" and Drs. Abraham Penner and Alice Bernheim, "Hemostatic Mechanisms as a Cause of Visceral Lesions."——A symposium on arthritis was presented at a stated meeting of the New York Academy of Medicine March 2 by Drs. Philip S. Hench, Rochester, Minn.; Walter Bauer, Boston, and Ralph H. Boots, New York.——Dr. J. Irving Kushner, among others, addressed the Bronx Gynecological and Obstetrical Society February 27 on "Obstetrics in a General Hospital (10,000 Cases at the Bronx Hospital)."

NORTH CAROLINA

Society News. — Dr. Walter R. Johnson, Asheville, addressed the Buncombe County Medical Society, Asheville, March 20, on "The Use of the Gastroscope in Diagnosis of Stomach Disorders." Dr. James P. Rousseau, Winston-Salem, addressed the society in Asheville February 20 on "Roentgen Treatment of Pneumonia." In the afternoon the society held a panel discussion of pneumonia.——At a meeting of the Scotland County Medical Society in Laurinburg January 19 the speakers were Drs. Douglas Jennings, Bennettsville, S. C., on obstetrics; William T. Rainey, Fayetteville, on congestive heart failure, and William D. James, Hamlet, on the work of the state board of medical examiners.——Dr. Russell L. Haden, Cleveland, addressed the New Hanover County Medical Society, Wrightsville Beach, February 27 on "Nutritional Deficiency Diseases."

OHIO

Annual Library Meeting. — Dr. Cyrus C. Sturgis, Ann Arbor, Mich., addressed the second annual meeting of the Harold Brittingham Memorial Library at the Cleveland City Hospital January 17. His subject was "The Historical Development of Knowledge Concerning Blood Transfusion and Appraisal of Its Value." The library now contains 1,300 bound volumes and 500 books, it was reported. During 1938 4,800 visitors were registered and 1,500 items were borrowed.

Society News. — Dr. Arthur U. Desjardins, Rochester, Minn., addressed the Academy of Medicine of Cincinnati March 21 on "Radiotherapy for Inflammatory and Malignant Conditions." Dr. Herman O. Mosenthal, New York, discussed "Experiences with Protamine Zinc Insulin" March 7.——Dr. Grover C. Penberthy, Detroit, addressed the Montgomery County Medical Society, Dayton, March 17 on "Burns, Their Treatment and Management."——Dr. George M. Curtis, Columbus, addressed the Mahoning County Medical Society, Youngstown, March 21 on "Iodine Metabolism in Thyroid Disease."

OREGON

Society News.—A discussion of thrombosis and embolism was presented before the Multnomah County Medical Society, Portland, March 15 by Drs. Charles H. Manlove, Warren C. Hunter and Herbert H. Foskett.——Dr. Virgil E. Dudman, Portland, addressed the Central Willamette Medical Society, Eugene, February 2 on "Obstetrics: Emergency Conditions."

Changes in Health Officers. — Dr. Courtney M. Smith, Oregon City, has resigned as health officer of Clackamas County to become assistant health officer of Portland. Dr. Daniel P. Trullinger, Oregon City, succeeded Dr. Smith in Clackamas County.——Dr. Gerald E. Stark, Coquille, has been appointed health officer of Coos County to succeed Dr. Charles L. Coyle, Grants Pass, who resigned recently.

PENNSYLVANIA

Professor Krogh Lectures at Swarthmore.—Prof. August Krogh of the University of Copenhagen, Denmark, is delivering a series of lectures at Swarthmore College, Swarthmore. The general subject of the series is "The Comparative Physiology of Respiratory Mechanisms."

Personal.—Dr. Howard C. Frontz, Huntingdon, was recently elected to serve his second term as president of the Huntingdon County Medical Society; his first election was in 1897.——Dr. Thomas H. A. Stites, Nazareth, has been appointed medical director of the Cresson Sanatorium, State, a position he held from 1923 to 1935. He succeeds Dr. Louis A. Wesner.——Dr. Samuel J. Dickey, West Chester, health officer of Chester County, has been appointed director of the division of tuberculosis in the state department of health.

Philadelphia

Scarlet Fever Outbreaks.—Eighty-four students at Girard College were reported ill of scarlet fever March 24. Dick tests were to be made of the other 1,646 students.——The Sigma Phi Epsilon fraternity house at Temple University was quarantined March 21 when four of twenty-one residents became ill of scarlet fever.

Society News. — Drs. Manuel M. Pearson and Marcus David Burnstine, among others, addressed the Philadelphia Psychiatric Society March 10 on "Psychosis Precipitated by Sulfanilamide."——Among the speakers at a meeting of the Philadelphia Academy of Surgery March 6 were Drs. John S. Lockwood and Virgil H. Moon on "Bacteriologic Considerations in Wound Healing" and "Early Recognition of Shock and Its Differentiation from Hemorrhage," respectively.——At a meeting of the Philadelphia Laryngological Society March 7 the speakers included Drs. Matthew S. Ersner on treatment of type III pneumococcus meningitis with sulfapyridine; David Myers, treatment of otitic sepsis and meningitis with sulfanilamide, and Merrill B. Hayes, employment of sulfanilyl aminopyridine in other otorhinologic conditions.——Speakers before the Philadelphia County Medical Society March 8 were Drs. Samuel W. Sappington on "Heparin in Blood Transfusion"; Charles B. Hollis, "Effect of Tobacco on the Respiratory Tract," and George D. Geckeler, "Coronary Artery Disease."

RHODE ISLAND

Committee on Industrial Health Appointed.—Dr. Charles F. Gormly, Providence, has been appointed chairman of a committee on industrial health of the Rhode Island Medical Society. The appointment of the committee was authorized at a meeting of the house of delegates in January.

SOUTH DAKOTA

Dr. Cook Appointed State Health Superintendent.—Dr. John F. D. Cook, Langford, for many years secretary of the South Dakota State Medical Association, has been appointed superintendent of the state board of health. He succeeds Dr. Park B. Jenkins, Pierre.

TEXAS

Hospitals Opened. — The Patterson Memorial Hospital, Troup, was opened recently. The new eighteen room hospital was built by Miss Gillie Patterson, Troup, in memory of her parents. The Littlefield Hospital and Clinic, with twenty-three private rooms, two wards of two beds each and five bassinets, was opened recently.

Bequest to Sealy Hospital. — Mrs. Jennie Sealy Smith, who died Oct. 10, 1938, directed in her will that after the payment of certain bequests the balance of her estate, estimated at $4,000,000, be paid to the Sealy and Smith Foundation for the John Sealy Hospital, Galveston. A private and semi-private pavilion is to be erected in memory of Mrs. Smith's husband, R. Waverly Smith.

VIRGINIA

Society News.—Drs. Edwin C. Hamblen, Durham, N. C., and Charles P. Mangum, Richmond, addressed the Danville-Pittsylvania Academy of Medicine March 14 on "Endocrine Disturbances and Present Day Endocrine Therapy" and "Pediatric Endocrinology" respectively.——Dr. Beverly C. Smith, New York, addressed the Roanoke Academy of Medicine February 6 on "Diagnosis and Treatment of Peripheral Vascular Diseases" and Dr. Henry Lee, Roanoke, on "Postoperative Thrombophlebitis."

State Society's Cancer Committee.—The advisory committee to the Virginia Cancer Foundation, appointed recently by the president of the Medical Society of Virginia, has been enlarged and will now act as an advisory committee to the Women's Field Army of the American Society for the Control of Cancer, the cancer foundation and any other agencies seeking advice or endorsement on this subject. Dr. Edwin P. Lehman, Charlottesville, is chairman and the members are: Drs. Irl C. Riggin, Richmond, state health officer; Isaac A. Bigger, Richmond; Frederick M. Hodges, Richmond; Robert L. Payne, Norfolk; Richard P. Bell, Staunton, and Isaac C. Harrison, Danville. Dr. Hugh H. Trout, Roanoke, president-elect of the state society, and Dr. Alexander F. Robertson Jr., Staunton, president, are ex officio members.

WASHINGTON

Puget Sound Surgical Meeting.—Dr. Philip D. Wilson, New York, was the guest speaker at the annual meeting of the Puget Sound Surgical Society in Seattle March 10-11. Dr. Wilson delivered an address March 10 at a dinner at the Rainier Club on "Pioneers in Orthopedic Surgery." Saturday he conducted clinics at King County Hospital and in the evening spoke at the annual banquet on "Inequality of Leg Length and Methods of Correction."

Society News.—Dr. Brien T. King, Seattle, addressed the Walla Walla Valley Medical Society, Walla Walla, February 9 on goiter and on recent research on the restoration of the abductor function of the larynx following paralysis due to recurrent nerve paralysis.——A symposium on the biliary tract was presented before the King County Medical Society, Seattle, March 6, by Drs. Clyde R. Jensen, Thomas W. Blake, Charles E. Watts and John A. Duncan.——Dr. Sterling Bunnell, San Francisco, was the guest speaker at the annual meeting of the Tacoma Surgical Club April 1. His subject was "Primary Repair of the Injured Hand."——A symposium on gallbladder disease was presented before the Spokane County Medical Society, Spokane, March 16 by Drs. James M. Nelson, Joseph Melvin Aspray, Charles M. N. Anderson, Robert L. Rotchford and Rudolph G. Andres.——Drs. Samuel E. Light and John W. Gullikson addressed the Pierce County Medical Society, Tacoma, February 14 on "Treatment of Acne Vulgaris" and "Spinal Anesthesia" respectively.

WYOMING

Personal.—Dr. Walter M. Lacey, Cheyenne, has resigned from the state board of medical examiners and has been succeeded by Dr. Jacob R. Pierce, Thermopolis.

Changes in State Board of Health.—Dr. Enos G. Denison, Sheridan, and Raymond G. Howe, D.D.S., Casper, have been appointed members of the state board of health and Dr. Marshall C. Keith, Casper, has been made state health officer. Dr. Keith is secretary of the Wyoming State Medical Society.

GENERAL

Nurses Wanted for Latin American Service.—At the request of health authorities of one of the Latin American republics, the Pan American Sanitary Bureau, Washington, D. C., is seeking nurses familiar with Spanish and if possible trained in care of mental cases. Contracts will be offered for two years and transportation to their destination will be paid.

The Society of University Surgeons.—This society, organized in 1938, held its first annual meeting at the University of Rochester School of Medicine and Dentistry, Rochester, N. Y., in February. Dr. Samuel J. Stabins, Rochester, was elected president; Dr. Warren H. Cole, Chicago, president-elect, and Dr. Frank Glenn, New York, secretary. The society is made up of surgeons who have completed a surgical residency in one of the following schools and are now engaged in teaching in these or other institutions: University of Chicago, University of Cincinnati, University of Rochester, Columbia, Cornell, Harvard, Johns Hopkins, Vanderbilt, Washington and Yale universities.

Changes in Status of Licensure.—The State Board of Health of Kentucky has reported the following action:

Dr. Ernest Raspberry Alexander, Cynthiana, license revoked January 7 for violation of the Harrison Narcotic Act.

Dr. Walker L. Stumbo, Lackey, license revoked January 7; allowed to practice on probation.

The New York State Board of Medical Examiners reports the following action:

Dr. Edmund K. Macomber, 745 New Scotland Avenue, Albany, license revoked Nov. 16, 1938, for criminal abortion.

The Virginia State Board of Medical Examiners recently reported the following action:

Dr. J. Burton Nowlin, Lynchburg, license revoked Dec. 14, 1938, for violations of the Harrison Narcotic Act.

Dr. Gilmer Rosser Shelton, Dabney, license revoked Dec. 14, 1938, on account of violations of parole in relation to the Harrison Narcotic Act.

Society News.—The annual convention of the American Red Cross will be held in Washington, D. C., April 24-27.——The twenty-fourth annual meeting of the American Association of Industrial Physicians and Surgeons with the American Conference on Occupational Diseases and Industrial Hygiene will be held at the Hotel Statler, Cleveland, June 5-8.——The American Society of Anesthetists will meet in New York April 14 with the following speakers: Drs. Philip D. Woodbridge, Boston, and Karl A. Connell, Branch, N. Y., on "Hazards of Explosion from the Point of View of the Anesthetist," and Joseph Warren Horton, Sc.D., Cambridge, Mass., "Factors Affecting the Occurrence and Prevention of Electrostatic Sparks."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, Syracuse, N. Y., $147,932.93 by the will of the late George Doheny. Other institutions sharing equally in the residuary estate include the Syracuse Memorial Hospital, General Hospital of Syracuse, Syracuse Free Dispensary and St. Mary's Maternity Hospital and Infants' Asylum.

Lenox Hill Hospital and New York Post-Graduate Medical School and Hospital, $20,000 each, and New York Infirmary for Women and Children, $15,000, by the will of Mrs. Amalia F. Morse; all are in New York.

Lenox Hill Hospital, New York, $150,000 by the will of the late Jacob Ruppert.

Eye and Ear Hospital of Pittsburgh, $3,000 by the will of Dr. James A. Lippincott.

St. Luke's Hospital, New York, $5,000, and New York Eye and Ear Infirmary, $2,500 by the will of Miss Virginia Scott Hoyt.

Methodist Episcopal Hospital and Methodist Home for the Aged, Philadelphia, $5,000 by the will of the late Miss Emily Leaming Goble.

Shriners Hospital for Crippled Children and Lankenau Hospital, Philadelphia, will share with three other institutions about $600,000 from the estate of the late C. Henry Strecker.

Special Society Elections.—Dr. James L. Dunavant, Ripley, Tenn., was chosen president-elect of the Mid-South Post Graduate Medical Assembly at the annual meeting in Memphis, Tenn., in February. Dr. Herbert Fay H. Jones, Little Rock, became president.——Dr. Charles J. Andrews, Norfolk, was named president-elect of the Tri-State Medical Association of the Carolinas and Virginia at the annual meeting in Charleston, S. C., in February. Vice presidents elected were Drs. John S. Horsley, Richmond, Va.; Harold S. Clark, Asheville, N. C., and William R. Wallace, Chester, S. C. Dr. James M. Northington, Charlotte, N. C., was reelected secretary. The 1940 meeting will be in Richmond.——Dr. Robert D. Schrock, Omaha, was chosen president-elect of the American Academy of Orthopaedic Surgeons at its seventh annual convention in Memphis January 15-19, and Dr. George E. Bennett, Baltimore, was installed as president. Other officers are Drs. Alfred R. Shands Jr., Wilmington, Del., vice president; Eugene Bishop Mumford, Indianapolis, treasurer; Carl E. Badgley, Ann Arbor, Mich., secretary, and Philip Lewin, Chicago, historian and librarian. The next annual session will be held at the Hotel Statler, Boston.

Meeting of American Rheumatism Association.—The American Rheumatism Association will hold its annual meeting in St. Louis May 15 at the Chase Hotel, beginning at 9:15 a. m. All members of the American Medical Association are invited. Following the presidential address by Dr. Ralph Pemberton, Philadelphia, the program will be presented:

Dr. Francis C. Hall, Boston, Menopause Arthritis.

Dr. Richard H. Freyberg, Walter D. Block, Ph.D., and M. F. Fromer, Ann Arbor, Mich., Study of Sulfur Metabolism and the Effect of Sulfur Administration in Rheumatoid Arthritis.

Dr. Louis Maxwell Lockie and Roger S. Hubbard, Ph.D., Buffalo, Observations of Effect of High Fat Diet in Gouty Arthritis.

Dr. J. Albert Key, St. Louis, Foreign Body Arthritis.

Drs. Marian W. Ropes and Walter Bauer, Boston, Origin and Nature of Normal Synovial Fluid.

Drs. Martin Henry Dawson and Ralph H. Boots, New York, Arthritis Associated with Lymphogranuloma Venereum.

Drs. Frances Baker, James F. Rinehart, Stacy R. Mettier and Frederick S. Bruckman, San Francisco, Rheumatoid Arthritis of the Spine.

Drs. Nathan Sidel and Maurice I. Abrams, Boston, Treatment of Chronic Arthritis: Results with Saline Injections Used as Controls for Vaccine Therapy.

Dr. John P. Stump, New York, Prevention of Arthritic Deformities by Early Orthopedic Management.

Report of the Commonwealth Fund.—During its twentieth year the Commonwealth Fund of New York appropriated $2,277,953.19 for philanthropic purposes. More than four fifths of its expenditures went for the promotion of health, principally for medical education, research, public health and community hospitals in rural areas. The fund's endowment having been raised in 1937 to almost $50,000,000, the appropriations for the past year were the largest it has ever made. The ninth rural hospital built by the fund was opened at Ada, Okla., during the year, and two others have been planned—one at Provo, Utah, and one at Lancaster, S. C. A new type of arrangement has been made with the Kings Mountain Memorial Hospital at Bristol, Tenn.-Va., by which the fund will finance modernization of the plant and provide resident medical service. In return, the community agrees to put the institution on a sound financial footing and bring its operation in line with accepted standards. Contributions to medical education through various channels amounted to $375,000. A new plan in this field was to award fellowships to ten junior instructors

in medical schools for study in other institutions. Four junior staff men interested in pediatrics received fellowships to study psychiatry. Other new awards include subsidies to the departments of preventive medicine at New York and Long Island College of Medicine. Fifteen medical schools and hospitals received funds for medical research amounting to $345,000. To some extent these funds were concentrated on groups of related studies at different centers. Oklahoma and Alabama were added this year to the states receiving assistance in support of rural public health service. In Oklahoma a state traveling unit to advise local health officers and a demonstration of county health work in Seminole County were made possible through the fund. In Alabama the state health department received aid in building up a health district of seven counties as a means of strengthening local service in various fields of local health activity. One of the major interests of the Commonwealth Fund is in mental hygiene and it has promoted this activity in England as well as in the United States. According to the report, these activities in the United States have three main objectives: to encourage exploration of the frontiers between psychiatry and other areas of medicine (particularly pediatrics); to increase the supply of trained psychiatrists and psychiatric social workers, and to promote and safeguard standards of clinical organization and service. The fund last year subsidized teaching clinics at the New York Hospital and the Babies Hospital in New York, Children's Hospital in Boston and the University of Minnesota, Minneapolis; it offered fellowships in psychiatry and psychiatric social work and maintained a national advisory service for community clinics in cooperation with the National Committee for Mental Hygiene. In England the fund continues to assist the London Child Guidance Center, an agency known as the Child Guidance Council and a training course for psychiatric social workers.

CANADA

Society News.—Dr. Edmund L. Keeney, Baltimore, addressed the section on medicine of the Academy of Medicine of Toronto January 10 on "'Slow' Epinephrine" and Dr. Alfred H. W. Caulfield on "'Slow' Epinephrine Inhalant."—— Dr. Irvine McQuarrie, professor and head of the department of pediatrics, University of Minnesota Medical School, Minneapolis, addressed the Montreal Neurological Society at McGill University, Montreal, March 1, on "Physicochemical Studies on the Mechanism of Convulsive Phenomena."

Grants to University of Toronto.—A gift of $250,000 from the Rockefeller Foundation toward an endowment for the school of nursing is announced by the University of Toronto. The department of medical research at the Banting Institute has received from the Supreme Council of the Scottish Rite Masons a grant of $2,500 for research on the insulin and metrazol treatments for dementia praecox. A gift of 200 mg. of radium has been made to the department of medical research by Gilbert A. Labine of the Eldorado radium mines in memory of his son Leonard.

FOREIGN

Dr. Rous Lectures in England.—Dr. Francis Peyton Rous of the Rockefeller Institute for Medical Research, New York, gave the William Withering Lectures at the University of Birmingham, England, March 9, 16, 21 and 23, on the cancer problem.

Anniversary of Petrus Camper's Death.—The University of Groningen, Holland, announces a special meeting and exhibition April 29-30 to commemorate the one hundred and fiftieth anniversary of the death of Petrus Camper, a physician, anatomist, obstetrician and artist who for ten years was professor of medicine at the university. Camper died April 7, 1789. At the memorial meeting Saturday evening, April 29, addresses will be made by Dr. B. W. Th. Nuyens, Amsterdam, and members of the Groningen faculty. The exhibition will bring together anatomic drawings by Camper and a number of preparations made by him. The drawings are in the possession of the Library of the Netherlands Society for the Promotion of Medicine at Amsterdam and the University Library at Leyden.

CORRECTION

Immunization Against Pertussis.—In Miller and Faber's article in THE JOURNAL, March 25, page 1147, second column, first paragraph, line seven, the word "disease" should have been "exposure" and in the following line the word "from" should be deleted. In the second line of the third paragraph in the same column the word "atypical" should be "typical."

Government Services

Meningitis on the Navajo Reservation

An outbreak of meningitis on the Navajo Indian Reservation, which covers parts of Arizona, New Mexico, Colorado and Utah, is reported in a recent issue of the *Navajo Medical News,* bulletin of the Indian Medical Service for this reservation. The report covered the area served by the Indian Hospital at Shiprock, N. M. In twenty-seven suspected cases, the diagnosis was positive in thirteen, presumptive in twelve and negative in two. Twenty-six cases occurred in Navajos. Several of the patients had died before the physicians were notified and the diagnosis was made from descriptions of the symptoms. Of the twenty patients who were hospitalized, nineteen were in Shiprock hospital. There were thirteen deaths: five in the Shiprock hospital; one in San Juan Hospital, Farmington, N. M., and seven outside of hospitals. Most of the patients were children, the average age being 11½ years. A brief mention of this outbreak, based on a newspaper report, was published in THE JOURNAL January 28 under Utah news, page 343.

Medical Activities of the Veterans' Administration

The Veterans' Administration had 50,899 patients under hospital care at the close of the fiscal year ended June 30, 1938, an increase of 4,483 over the previous year, according to the annual report of the administrator. The largest proportion of these beneficiaries were hospitalized for neuropsychiatric diseases, 57.54 per cent; 9.64 per cent were under treatment for tuberculosis and 32.82 for general medical and surgical conditions. Of the total number of veterans, 76.32 per cent were receiving treatment for disabilities not of service origin.

Hospital admissions for 1938 were the highest of any fiscal year since 1919, when government facilities were authorized for care of World War veterans. There were 152,966, of which 91 per cent were for nonservice-connected disabilities. They were divided as follows: 10,989 for tuberculosis, 10,750 for psychotic or mental diseases, 12,686 for other neurologic disorders and 118,541 for general medical and surgical diseases.

During the fiscal year 202,081 patients were under treatment; 149,956 were discharged after an average of 76.9 inpatient days. Deaths in hospitals totaled 10,117, or 6.75 per cent of the discharges. Of the total number of deaths, 6,620 occurred among patients with general conditions; about 36 per cent of these deaths were caused by diseases of the circulatory system including heart disease, and 33 per cent by malignant tumors and diseases of the digestive system. In addition, there were 1,979, or 19.56 per cent of all the deaths, from pulmonary tuberculosis, and 1,518, or 15 per cent of the total, from neuropsychiatric diseases.

Veterans present in domiciliary status in facilities under the control and jurisdiction of the administration totaled 14,254, an increase of 3,216 during this fiscal period. Of the entire number, 10,104 were disabled by medical and surgical conditions, 3,844 by neuropsychiatric diseases and 306 by tuberculosis. During the year there were 28,585 admissions for domiciliary care, of which about 90 per cent were for nonservice-connected disabilities.

The Veterans' Administration was operating hospital facilities at eighty-one locations in forty-three states and the District of Columbia, with a capacity of 51,991 beds. There was an increase of 4,570 beds, of which 80 per cent was in beds for mental patients. At the close of the fiscal year construction was in progress on twenty-two major projects to provide 3,626 beds. Funds have been made available for 6,593 more beds. The administration also has 16,798 domiciliary beds and new construction will provide 2,158 more.

The net operating expense for all facilities totaled $49,076,115.42 and the per diem rate for the year was $2.65, as compared with $2.81 in 1937.

Field facilities of the administration made a total of 1,128,587 physical examinations for outpatient purposes, of which 98 per cent were medical and 2 per cent dental. Treatments furnished during the year totaled 994,968, as compared with 895,208 the previous year. About $400,000 was authorized for the purchase of orthopedic and prosthetic appliances, the largest item being $122,000 for artificial legs.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 11, 1939.

The Protection of Physicians in Air Raids

In a debate in the House of Lords on air raid shelters, Lord Horder said that in the event of war no adequate security, physical or moral, could be afforded to those who continued to work in a dangerous area, except by some form of bomb-proof shelter. He had special reason for speaking, because one body must inevitably work in a danger zone—the physicians. An intensive air raid must paralyze for a time all activity, even on the part of physicians at a first aid station. Some thought that as many casualties as possible should be removed forthwith from the danger center to the less dangerous parts of the city, the periphery. But, owing to the congestion of thoroughfares and the blocking of streets by débris, many casualties would have to be treated at the point of origin and the physicians must be there to administer treatment. This was the whole meaning of a first aid station or hospital. He therefore entered a special plea that the first aid stations must be in some bomb proof place, and he could think of none adequate for this purpose except a deep underground shelter. At present 95 per cent of physicians were already enrolled by the British Medical Association for war work. The minister of health was now earmarking from that register those for special purposes. The number of these experts was limited, and the first air raids must count among their casualties a large number of physicians. He was not speaking on their behalf; he was speaking economically. They were valuable citizens and more valuable prospectively in the event of war. Their replacement was limited and, apart from that, their work would be possible only underground. Not only they but their valuable equipment, which would be difficult to replace in an emergency, must be in a place of adequate shelter. Replying for the government, Lord Birkenhead said that the question of underground dressing stations was under consideration. The problem of deep shelters was more complex than was supposed. None of the continental great powers had gone in for them on a large scale.

A Clinic for Criminals

That crime is often a medical problem has been increasingly realized in recent years. Dr. Norwood East, lecturer on crime and insanity at the Maudsley Hospital, and Dr. W. H. Hubert, psychotherapist at Wormwood Scrubs Prison, have in their official report recommended a new institution in which abnormal and unusual types of criminals can be given psychologic treatment. They have for four years been engaged in an investigation to determine how far psychiatric and psychotherapeutic experience in the management and treatment of psychotic and psychoneurotic illnesses and various forms of behavior could be applied with profit to prisoners of divergent types.

They investigated 406 prisoners, including boys with whom the Borstal system had failed, adolescent adults and a large group of sex offenders. Of these, 214 were treated psychologically. They concluded that 75 per cent of the Borstal boys, 55 per cent of the adolescents, 30 per cent of the adults and from 30 to 65 per cent of the sex offenders were suitable for the new institution. They suggest that this should serve as (1) a clinic and hospital for treatment by psychotherapy, (2) an institution for the psychiatric treatment of prisoners who have not proved amenable to the reeducative and rehabilitating influences of the modern prison, (3) a colony for offenders for whom reformative methods, however specialized, seem useless and the severity and hardships of prison life are not appropriate, and (4) an observation and treatment center for boys who, because of mental abnormality, appear unsuitable for Borstal training or have failed to respond to it. The medical staff should be psychiatrically trained, with additional experience in criminology, and the superintendent should be a prison psychiatrist. The inmates should not be insane or mentally defective and should not be encouraged to regard themselves as irresponsible mental invalids. Those who refuse to cooperate in treatment and abuse their privileges should be returned to prison.

Other recommendations of the report are extension of the use of psychotherapy on probation, but largely confined to first offenders, with the condition that the offender must reside for certain periods in a mental hospital or approved place. The investigation was confined to men and boys, but the investigators do not doubt that their experience justifies the appointment of a woman psychotherapist to a woman's prison and they recommend such an appointment.

PARIS

(From Our Regular Correspondent)

March 4, 1939.

Protamine Zinc Insulin in the Treatment of Diabetes

At the January 20 meeting of the Société médicale des hôpitaux of Paris, Dr. Raoul Boulin reported the following results of treatment with protamine zinc insulin in 100 cases of diabetes:

1. Glycosuria disappeared in seventy-four cases. In two of these, injections of ordinary insulin had also been given before meals. In the other seventy-two the glycosuria could be controlled with a dose of protamine zinc insulin which was only one sixth that of ordinary insulin. In eleven of the other twenty-six cases the blood sugar content was lowered about 50 per cent, but in fourteen cases the substitution of protamine zinc insulin failed to have any influence on the glycosuria. In the last-named group the diabetes was of a severe type, from 70 to 90 units daily of ordinary insulin being required to control the glycosuria. A better result might have been obtained in these fourteen cases if ordinary insulin had been given as an adjuvant before meals.

2. The blood sugar content before eating was brought down to normal in twenty-eight cases with doses of protamine zinc insulin varying from 16 to 50 units, about one fifth the dose of ordinary insulin. Of the other seventy-two cases, the blood sugar content was slightly above normal, i. e. from 1.25 to 1.5 Gm., in twenty-nine, between 1.5 and 2 Gm. in twenty-nine and above 2 Gm. in fourteen. In a total of ninety-six cases there was a lowering of the blood sugar content before eating, even though there was an average reduction of one sixth from the dose which, with ordinary insulin, would have given the same results. In four cases of severe diabetes the blood sugar content was distinctly higher after the use of protamine zinc insulin.

3. Local complications noted were painful nodules at the site of injection, which became ecchymotic at times. Such nodules were usually observed if the injections of protamine zinc insulin had been given too superficially. In addition to these nodules, pruritus, urticaria and a bullous eruption were seen. These local complications necessitated cessation of treatment in two cases.

4. General complications included in two cases headache so severe as to cause the treatment to be suspended. Symptoms of hypoglycemia were observed in nineteen cases. The syndrome usually appeared after midnight, in the milder form as nausea and profuse perspiration. In only four cases were convulsions and a comatose state noted, and response to treatment was rapid.

5. A sudden transitory increase in the severity of the glycosuria or a sudden drop in the blood sugar content, also temporary, was often noted.

6. An apparent failure to obtain good results with protamine zinc insulin is often due to the fact that the patient does not shake the ampule so that the insulin is well suspended in the solution. Other causes of failure which may be cited are injection into the muscular tissues instead of the skin and a too liberal diet.

7. Protamine zinc insulin is to be especially recommended for diabetes of moderate severity. In a certain number of cases of severe diabetes it has the advantage over ordinary insulin that it can be given not only in smaller doses but also in a single injection. In other cases of severe involvement, about 14 per cent of all in which ordinary insulin is indicated, the protamine zinc combination given alone and in a single dose has not given as good results as ordinary insulin given in several doses; hence it is advisable to employ both the ordinary and the protamine zinc variety.

Cerebral Complications Following the Use of Acetarsone

At the January 20 meeting of the Société médicale des hôpitaux of Paris a case was reported by Dr. Robert Worms in which cerebral symptoms appeared a few hours after introduction into the vagina of a tablet containing 0.25 Gm. of acetarsone. A woman aged 65 had been given such tablets as a remedy for leukorrhea. The treatment was resumed after a lapse of three months. About twelve hours after insertion of a tablet she felt nauseated and complained of a severe headache and the temperature rose to 103 F. The following day a generalized scarlatiniform eruption appeared. Despite repeated injections of epinephrine the headache became more severe, and forty hours later the patient became comatose after an epileptiform convulsion. The coma persisted for two days and was followed by rapid cessation of all symptoms. In a search for the cause of such a clinical picture it was found that twelve years before the patient had been given a series of injections of acetylarsan (a French proprietary preparation, p-oxy-acetylamino-phenylarsinate of diethylamine) for chronic intestinal parasitosis. Five days after the second injection severe headache, convulsions and coma appeared, which receded as rapidly as during the present attack.

Dr. Worms expressed the opinion that, as in the case reported by Laederich and his co-workers, the syndrome following the introduction into the vagina of such a relatively small amount of an arsenical preparation could be due only to an intolerance to such medication.

In the discussion the syphilologist Dr. Milian said that the pentavalent arsenical preparations so commonly employed at present are apt to give rise to the same complications as the trivalent arsenical preparations. The use of the pentavalent preparations can be followed by peripheral neuritis or neuritis involving the optic or auditory nerve in persons who have an intolerance toward all arsenical preparations. As to absorption from the vagina, in the use of arsenical preparations for syphilis, he had seen results from the use of vaginal suppositories as good as those which are generally obtained with oral or intravenous medication.

BERLIN

(From Our Regular Correspondent)

Feb. 20, 1939.

The New Medical Curriculum

The increased shortage of trained professional men in Germany has aroused a great deal of apprehension with regard to the younger generation. Certainly the educational programs have numerous disadvantages, the most egregious of which have been the late age at which training is completed and the still later age at which the professional man has found it possible to establish a family. Legislation to become effective April 1 has been framed with the purpose of correcting these disadvantages. The new law aims chiefly at a greater concentration of the curriculum and the avoidance of unnecessary waste of time. Revisions become necessary in the medical curriculum from time to time in order that the schools may keep pace with the advances of scientific knowledge; certain courses lose their importance and new courses of study must be accorded a larger place. Since the Nazi revolution, a whole series of reforms has been urged. The physician now is quite mature before he founds a family. The prospective doctor passes the examination for entrance to the university at the age of 18 (the earliest limit). At the age of 20 or 21 he has completed the compulsory labor service and military service required of all male citizens. There follow five and one half years of medical study and the year of undergraduate internship required of every medical student before he receives the final license. Meanwhile the young man has reached the age of 27 at least. If he wishes to specialize there follows a further period of special training, which averages five years. Most doctors are ultimately admitted to sickness insurance practice, but before becoming a panel practitioner a doctor must have had at least two years of general practice. Time spent in the study of a specialty is to a certain extent deductible from the period of preparation for panel practice. Accordingly a general practitioner is about 29 and a specialist about 33 before an independent practice can be begun.

The curtailment effected by the new legislation will amount to two years; it is accomplished as follows: 1. The regular curriculum is reduced from the present eleven to ten semesters (four preclinical and six clinical). 2. The year of internship, which at present must be served immediately after the student has completed his courses and passed the state examination, is incorporated within the undergraduate schedule. At specified times the medical student will serve under a staff physician as a "famulus" in a clinic or hospital. This arrangement has existed for decades on a voluntary basis. Hospitals must now adjust their routines to this new compulsory arrangement, which at the same time deprives them of the services of the graduate interns. For many institutions this loss of the "praktikanten" will be a severe blow since these men receive no remuneration and often perform valuable service. 3. Another half year will be saved by drastic abbreviation of the time required for taking the state examinations.

Despite these curtailments, several new compulsory lecture courses have been introduced into the curriculum at the instance of the national führer of physicians and the national führer of university instructors. According to official explanation of the innovation, "it must no longer be optional with the student whether or not he commits himself with regard to questions of vital importance to national life. The physician of the future must have an authoritative, fundamental knowledge of all these problems. In future less stress will be placed on the theoretical training than on the principle that theoretical knowledge and practical performance may be correlated in such a way that the present lack of practical ability will be a thing of the past." Whether through this new orientation

much will be lost that has helped to establish the reputation of German medicine the future will tell. The very foundations of this reputation may be menaced. Sad to say, the new curriculum represents a type of medical education the introduction of which has constantly been opposed by all intelligent medical groups. On the contrary, it cannot be denied that the reform legislation contains good points. For example, hereafter the courses in zoology, botany, chemistry and physics designed for medical students will be freed of a vast amount of detail which, while valuable to the student of natural science, is of no particular importance to the medical student. In the anatomy courses too the student will be spared certain excessive feats, such as the learning by heart of the nomenclature of the most minute vessels. Conversely, topographic anatomy will be given greater consideration.

The following items have been introduced into the preclinical curriculum: lectures on the history and nature of the art of healing, lecture courses in ethnology and policies regarding population (scheduled for the first semester, before the student can have formed any independent opinion with regard to these things), field trips in search of medicinal herbs, supplementary to the course in botany, six weeks of practice nursing (a real advance), a lecture course on the physiology of occupation, sports and aviation, and practical experience as a worker in a factory or on a farm. The excursions in search of medicinal herbs will of course further the new movements for natural therapeutics. The nursing service is to be performed between the second and third semesters; it is to show whether the student is psychically equal to contacts with the sick and whether or not he should continue in medicine. Factory service or farm service, lasting four weeks, will be interposed between the third and fourth semester. This means actual work as a farm or a factory hand; the requirement was initiated by public health headquarters of the Nazi party and is designed to aid the future practitioner to a better understanding of popular needs.

To the clinical part of the curriculum have been added courses in radiology, natural therapeutics, occupational diseases, treatment of traumatic injuries, child welfare, eugenics, dental diseases, genetics, forensic medicine and deontology. Several shorter lecture courses have been added and finally two three month terms as a famulus (between the sixth and seventh and the eighth and ninth semesters).

In professional quarters fears have been entertained that training under the new curriculum will be less complete than under the present curriculum. On the other hand, it is expected that the new plan will be "much more in accord with practical needs" and "more realistic." Henceforward the German medical student must work extra hard to assimilate his courses within a brief period. But it is already apparent that this high pressure type of training is being overdone and that the spirit of medical science, which ought to prevail, stands in danger of being badly damaged by overorganized curricular schedules. The youthful student should be allowed time in which to reflect on all the new facts learned in his courses and to make these an intimate part of himself. To do so he must have vacations and leisure periods, both of which are to be taken from him. Now he will be turned into a learning robot, hurried from one task to another.

There is no doubt that the lack of doctors must be made up as quickly as possible. Similarly a few weeks ago the prescribed minimal curriculum in all institutes of technology and kindred schools was abbreviated because of a shortage of engineers and other trained technicians, which is even more acute than the shortage of physicians. Although the ministerial decree of course does not say so, it is obvious that gaps exist in the ranks of German physicians as a consequence of the exclusion of Jews from practice. The expansion of the defense forces has created an additional need for physicians for, without exception, besides the six months labor service, military service has to be taken for two years before the younger men can begin their medical studies. It will be several years before the new curricular reforms can exert perceptible influence on the serious shortage of doctors. Will the young physicians trained under a system that minimizes theoretical principles be able to carry the disciplines into the practice of medicine, as doctors have been wont to do? Will the doctors of the future be able to find their way among new phenomena and principles no mention of which was made in their studies, and will they be able to comprehend the unfamiliar? There is room for doubt. Is it possible that the imponderabilities are being irretrievably sacrificed to temporary political expediency?

AUSTRALIA

(From Our Regular Correspondent)

Feb. 14, 1939.

National Health Insurance Abandoned

The commonwealth government of Australia has now decided to abandon completely its scheme for national health and pensions insurance. In a determined effort to preserve the plan even if only in skeleton form, several alternative schemes less comprehensive in nature were considered, but the agreement to abandon the whole insurance act was reached today with only two members dissenting. The treasurer (Mr. R. G. Casey), who evolved the scheme and fathered it through parliament, has now emerged as one of the strongest advocates against it. Reasons advanced for this decision are fear that the financial burden involved may be so great as to stifle normal developmental expenditure if it is allowed to fall simultaneously with the heavy defense program to which the ministry is already committed, fear of the repercussions from the cost of insurance while the greater part of the commonwealth is suffering from the effects of severe drought and widespread bush fires, and a recognition of the fact that throughout Australia the act is highly unpopular and that its introduction against the wishes of the people may lead ultimately to grave political consequences.

The opposition to the scheme in the ministry itself, although strong when parliament adjourned in December, has increased immensely since. In the past two months, members of the cabinet have moved freely in their electorates and have in many cases been astonished at the intensity of public feeling against national insurance.

The abandonment of the scheme will cost the commonwealth government at least £750,000 and perhaps £1,000,000, according to estimates made by the National Insurance Commission. Large sums of money have been spent on the initial steps for its establishment and numerous "approved societies" have incurred heavy expenditures to cope with the new responsibilities which they were prepared to undertake. Already 156 such societies have been formed in Australia, sixty by trade unions, fifty-nine by friendly societies and thirty-seven by miscellaneous organizations; wages contracts have been entered into with staffs, and many men have left lucrative posts to take administrative positions with the government or with approved societies. The government has not yet considered whether the whole organization which it created will be disbanded immediately or whether it will be kept to form a nucleus for the proposed national register (for defense purposes). The British Medical Association in Australia has been opposed from the start to national insurance as proposed by the government. It is to be hoped that this abandonment of the present scheme will furnish an opportunity for drawing

up at some future date a scheme more universally acceptable, to be put into practice at a time when the nation is better prepared to handle developmental measures.

The Future of Pharmacy

That the future of pharmacy depends on its resuming its original primary function as handmaiden to medicine was the theme of an address by Sir Stanton Hicks, professor of physiology at Adelaide University, to the pharmaceutic section of the recent meeting of the Australian and New Zealand Association for the Advancement of Science. Recent advances in synthetic aids to therapy demand the application of expert chemical knowledge in the medical field, but the physician in his capacity as a practitioner cannot be expected to grasp the full significance of the intricacies of chemistry. He needs cooperation with a chemical assistant, who will be able to advise him concerning the value of new synthetic therapeutic substances and other therapeutic chemical advances. Sir Stanton Hicks said that the profession of pharmacy must come back to where it was before the split between the apothecary and the physician. But we are coming back along roads which could not be envisaged then.

With the development of specific medicinal reagents, for example chemotherapeutic substances, vitamins, endocrine products and immune serums, we are approaching a phase of rational specific nonsurgical therapy, for which the whole-hearted cooperation of the pharmacist must be enlisted and for which the pharmacist must be prepared.

Regarding the need for chemical guidance in the doctor's choice of new therapeutic substances, it is doubtful that any individual pharmacist could give a reasonable opinion on their value. General opinion in Australia favors the formation of a body comparable to the Council on Pharmacy and Chemistry of the American Medical Association.

Medical Survey of Children

The possibility that many children acquire uneven shoulders because of the overuse of their right hand and arm was discussed by Dr. E. A. Machin before the recent congress of the Australian and New Zealand Association for the Advancement of Science. Dr. Machin disclosed the results of a health survey of 16,777 children attending state schools in New South Wales. Of the boys examined 34.2 per cent had uneven or "dropped" shoulders. Such shoulders appear to be associated with the general uneven or one-sided development of the muscles of the shoulder girdle as the result of the overuse of the right hand and arm. Games like tennis appeared to overemphasize the difference between the two sides.

Of the children examined 77 per cent had slight or no medical defects, 20.4 per cent had remediable defects including marked dental defects, 1.9 per cent had permanent defects not seriously incapacitating, and 0.4 per cent had defects causing permanent serious incapacity. The posture was reported as good for 26 per cent, average for 43 per cent, below average for 26 per cent and poor for 4 per cent. The nutrition of 37 per cent was good, of 64 per cent average, of 8.3 per cent below average and of 2.1 per cent poor. These figures, however, are based on a purely arbitrary standard of classification and are apt to convey a false impression as to the state of nutrition of Australian school children.

Postgraduate Education in New South Wales

This year is marked by the establishment of a postgraduate school of medicine at the Prince Henry Hospital in Sydney. This hospital, which was reconstituted by act of parliament in 1936, has been divided into three departments, of medicine, surgery and pathology, each under the control of a director, and, although a number of students have been attached to the school during the past year, attention has been devoted mainly to developing the organization necessary for postgraduate work. It will figure largely in the 1939 program of medical courses for graduates. Four important fellowships have been founded by the board of directors with the object of promoting postgraduate teaching in medicine and surgery in New South Wales, by enabling suitable graduates to obtain special experience in these fields, and also of encouraging and advancing research in medicine and surgery by systematized postgraduate instruction. A fellowship in anesthesia has been founded.

The New South Wales Postgraduate Committee holds a general revision course each year, which is brief and intensive and designed for general practitioners. Week end courses are held at various country centers; courses of a more special nature are arranged, and instruction for higher degrees and diplomas is provided.

Education for Physical Fitness

The coordinating Council of Physical Fitness at its recent meeting in Melbourne decided to ask the federal government to provide lectures in physical education at each of the Australian universities. The proposed scheme envisages a center in every state where young men and women may obtain instruction and training to qualify them for the instruction and training of others in physical fitness. In Australia there is a dearth of qualified persons in this field, and the primary task of any fitness campaign is to educate a team of potential instructors. The cost to the commonwealth government of the present proposals will be £12,000 a year. This will provide lecturers' salaries, the equipment of gymnasiums and the provision and upkeep of all facilities.

Oversupply of Medical Students

If the number of first year medical students at Australian universities remains constant, and there is every reason to assume that it will increase, one in every 250 young men and women in Australia will be embarking on a medical course. This proportion is absurdly high and must lead to an overloading of the medical profession. In comparison, one in 1,500 is entering the profession of dentistry, one in 600 the law and one in 800 engineering.

Money Spent on "Patent Medicines"

In an address on national health services at the seventh summer school of the Australian Institute of Political Sciences, Dr. T. L. Dunn, city health officer of Sydney, stated that the Australian public spends £11,000,000 annually on "patent medicines" and so-called cures. This represents an average annual expenditure of £2 a person.

Marriages

WESLEY DEE THOMPSON JR., Philadelphia, to Miss Catharine Gray Bennett of Wellsboro, Pa., Nov. 22, 1938.

HERBERT WILLIAM WALL, Los Angeles, to Mrs. Kathleen Petty Hudson in Dallas, Texas, in December 1938.

PRESTON HEPBURN WATTERS to Miss Mary Margaret Culbertson, both of Miami, Fla., in December 1938.

ARSHAK Y. YAZARIAN, Washburn, Ill., to Miss Satenig Siranossian of Bridgewater, Mass., August 14.

ST. JULIEN R. MURCHISON to Miss Lady Mildred Thomas, both of Fort Worth, Texas, Dec. 15, 1938.

RUSSELL C. WILLOUGHBY, Groves, Texas, to Miss Louise Latimer of Port Arthur, Oct. 12, 1938.

THOMAS B. TAYLOR, Douglasville, Ga., to Miss Carol Taylor at Powder Springs, in December 1938.

CHARLES STEPHEN WHELAN, Boston, to Miss Maria Elizabeth Hearns of Brooklyn, February 6.

LANDRUM TUCKER, Ripley, Tenn., to Miss Helen Roberts at Hot Springs, N. C., February 1.

HERMAN TURK, Lima, Ohio, to Miss Daphne Stout in Georgetown, Ky., February 13.

Deaths

John Bion Bogart ✠ Lower Granville, N. S., Canada; University of the City of New York Medical Department, 1884; an Affiliate Fellow of the American Medical Association; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; consulting surgeon to the Kings County, Jewish, Wyckoff Heights, Methodist Episcopal and Unity hospitals and the Brooklyn Home for Consumptives; aged 79; died, January 18, in the Memorial Hospital, Middleton.

Edwin Milton Beery ✠ Brooklyn; Bellevue Hospital Medical College, New York, 1897; senior surgeon to the Brooklyn Eye and Ear Hospital; consulting ophthalmologist to the Kingston Avenue Hospital and formerly director of eye service, Brooklyn Jewish Hospital; at one time assistant director of hospitals of New York City Department of Health; aged 67; died, January 30, in St. John's Hospital of heart disease.

Percival James Eaton, Provincetown, Mass.; Harvard University Medical School, Boston, 1888; member of the American Pediatric Society; on the staff of the Columbia Hospital, 1906-1918; past president of the staff of St. Margaret Memorial Hospital and on the staff of the Children's Hospital, Pittsburgh; aged 76; died, Dec. 28, 1938, in the Olean (N. Y.) General Hospital of carcinoma of the colon.

Jacob Treichler Butz ✠ Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; secretary of the Lehigh County Medical Society and the Lehigh Valley Medical Society; president of the Lehigh County Tuberculosis Society; for many years county medical director; city health officer; formerly county coroner; aged 65; died, Dec. 22, 1938, of cerebral thrombosis.

Ernest Loyd Cartwright, Springfield, Mo.; St. Louis University School of Medicine, 1926; member of the Missouri State Medical Association; on the staff of the Springfield Baptist Hospital, and on the associate staffs of the Burge and St. John's hospitals, aged 37; died, Dec. 30, 1938, in the Missouri Baptist Hospital, St. Louis, of complications following a nephrotomy for kidney stones.

William Cantrell, Greenville, Texas; Arkansas Industrial University Medical Department, Little Rock, 1897; member of the State Medical Association of Texas; past president of the Hunt-Rockwall-Rains Counties Medical Society; formerly member of the state board of medical examiners; physician in charge of a hospital bearing his name; aged 67; died, Dec. 28, 1938, of heart disease.

Robert Henry Ash, Canastota, N. Y.; College of Physicians and Surgeons, Buffalo, 1883; Hahnemann Medical College and Hospital, Chicago, 1884; member of the Medical Society of the State of New York; formerly health officer; on the staffs of the Canastota (N. Y.) Memorial Hospital and the Oneida (N. Y.) Hospital; aged 81; died, Dec. 19, 1938, of coronary thrombosis.

Randolph Faries, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1888; at one time professor of physical education at the University of Pennsylvania; formerly physician-in-chief of the city department of public welfare; aged 76; died, Dec. 30, 1938, in the Graduate Hospital of pneumococcic lobar pneumonia and arteriosclerotic heart disease.

Chester M. Carlaw, Minneapolis; McGill University Faculty of Medicine, Montreal, Que., Canada, 1891; member of the Minnesota State Medical Association; fellow of the American College of Surgeons; surgeon to the Northwestern and Minneapolis General hospitals; aged 68; died, January 7, of coronary sclerosis and diabetes mellitus.

Philip Sheridan Goodwin, Perry, N. Y.; Western Reserve University School of Medicine, Cleveland, 1885; member of the Medical Society of the State of New York; for many years coroner and village health officer; aged 73; died, Dec. 13, 1938, in the Rochester (N. Y.) General Hospital of arteriosclerotic heart disease.

Ward Eugene Collins ✠ Kalamazoo, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; member of the American Academy of Pediatrics; served during the World War; aged 55; on the staff of the Bronson Methodist Hospital, where he died, Dec. 31, 1938, of cerebral hemorrhage.

Vernon Alfred Gotcher, Lancaster, Pa.; University of Arkansas School of Medicine, Little Rock, 1931; member of the Medical Association of Georgia; formerly assistant professor of pathology at the University of Georgia School of Medicine, Augusta; aged 37; died, Dec. 2, 1938, of coronary occlusion.

Elbridge Arthur Carpenter, Passaic, N. J.; University of Vermont College of Medicine, Burlington, 1909; aged 56; died, January 1, in the General Hospital, Paterson, of purulent bronchiectasis and bronchopneumonia, following burns of the face received when he fell asleep while smoking.

Merchant C. Householder ✠ Pottsville, Pa.; Jefferson Medical College of Philadelphia, 1888; past president of the Schuylkill County Medical Society; on the staff of the Pottsville Hospital; aged 74; died, Dec. 17, 1938, of a dissecting aneurysm of the aorta and arteriosclerosis.

Elmer Ellsworth Bamford, Centerville, Iowa; College of Physicians and Surgeons, Keokuk, 1890; Rush Medical College, Chicago, 1893; fellow of the American College of Surgeons; on the staff of St. Joseph's Hospital; aged 72; died, January 6, in Appanoose of cerebral hemorrhage.

Christopher James Carr, Framingham, Mass.; Medico-Chirurgical College of Philadelphia, 1901; formerly member of the board of health; for several years school physician; aged 63; on the staff of the Framingham Union Hospital, where he died, Dec. 21, 1938, of chronic myocarditis.

John Dean Shipman, Vernon, N. Y.; Syracuse University College of Medicine, 1898; member of the Medical Society of the State of New York; served during the World War; formerly health officer and coroner of Vernon and Geneva; aged 63; died, Dec. 18, 1938, of heart disease.

James Rankin McCarrell, Pittsburgh; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 78; died, Dec. 12, 1938 in the Allegheny General Hospital of a skull fracture received when he was struck by an automobile.

Andrew Stephen Backus, St. Paul; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1905; member of the Minnesota State Medical Association; formerly deputy coroner; aged 57; was found dead, January 20, of carbon monoxide poisoning.

Amos Henry Baldwin, Pleasant Hill, Mo.; Hahnemann Medical College and Hospital, Chicago, 1890; member of the Missouri State Medical Association; past president of the Cass County Medical Society; aged 72; died, January 27, of pernicious anemia.

Richard H. Hutchings Jr., ✠ Wingdale, N. Y.; Syracuse University College of Medicine, 1919; member of the American Psychiatric Association; on the staff of the Harlem Valley State Hospital; aged 44; died, Dec. 14, 1938, of coronary occlusion.

Emerson Joel Linsday, Walled Lake, Mich.; Detroit College of Medicine and Surgery, 1927; member of the Michigan State Medical Society; formerly member of the health department of Detroit; aged 43; died, Dec. 25, 1938, of coronary occlusion.

Norman Olaf Dalager, Anamoose, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the North Dakota State Medical Association; aged 60; died, Dec. 27, 1938, in a hospital at Minot.

James Edgar Doig, Endicott, N. Y.; Albany (N. Y.) Medical College, 1899; member of the Medical Society of the State of New York; county coroner; aged 63; died, Dec. 31, 1938, in the Ideal Hospital, of cerebral hemorrhage and hypertension.

Gustaf Hugo Johnson ✠ Savannah, Ga.; Long Island College Hospital, Brooklyn, 1898; county coroner; served during the World War; on the staff of the Warren A. Candler Hospital; aged 67; died, Dec. 28, 1938, of acute dilatation of the heart.

Leroy Cholula Goff, Clarksburg, W. Va.; University College of Medicine, Richmond, 1906; member of the West Virginia State Medical Association; formerly county coroner; on the staff of St. Mary's Hospital; aged 60; died, Dec. 22, 1938.

William Brown Thistle, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, Ont., 1886; L.R.C.P., London, 1887; formerly associate professor of clinical medicine, University of Toronto Faculty of Medicine; died, Dec. 17, 1938.

Charles Lincoln Bliss, Washington, D. C.; University of the City of New York Medical Department, 1891; member of the Medical Society of the District of Columbia; formerly a medical missionary; aged 73; died, January 21, of cerebral thrombosis.

John Thomas Davis, Liberty, Kan.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879; member of the Kansas Medical Society; formerly county health officer; aged 85; died, Dec. 26, 1938, of chronic myocarditis.

Richard August Morgner, Fitchburg, Mass.; Tufts College Medical School, Boston, 1902; member of the Massachusetts Medical Society; for many years on the staff of the Burbank Hospital; aged 65; died, Dec. 27, 1938, of diabetes mellitus.

Henry Herbert, Los Angeles; Medizinische Fakultät der Universität Wien, Austria, 1891; at one time associate professor of physical diagnosis at the College of Physicians and Surgeons, Los Angeles; aged 72; died, Dec. 15, 1938, of heart disease.

Charles Le Baron ✠ Gulfport, Miss.; Medical College of Alabama, Mobile, 1889; past president of the Harrison County Medical Society; on the staff of the King's Daughters' Hospital; aged 70; died, Dec. 11, 1938, of chronic nephritis.

Joseph Thomas Brennan ✠ Grandview, Mo.; St. Louis University School of Medicine, 1908; county health officer; served during the World War; aged 56; died, Dec. 31, 1938, in St. Joseph Hospital, Kansas City, of coronary thrombosis.

Peter M. Campbell, Elgin, Ill.; Detroit College of Medicine, 1891; member of the Illinois State Medical Society; on the staffs of St. Joseph's and Sherman hospitals; aged 78; died, January 17, of lobar pneumonia and chronic myocarditis.

James Percy Powell, Mangham, La.; Arkansas Industrial University Medical Department, Little Rock, 1896; aged 70; died, Dec. 5, 1938, in Vicksburg (Miss.) Sanitarium, of arteriosclerotic heart disease and chronic nephritis.

Frederick Durand Davis ✠ Springfield, Mass.; University of Vermont College of Medicine, Burlington, 1910; served during the World War; on the staff of the Mercy Hospital; aged 54; died, Dec. 31, 1938, of coronary thrombosis.

Charles Henry Root ✠ Bassett, Neb.; University of Nebraska College of Medicine, Omaha, 1903; aged 62; died, Dec. 14, 1938, in the Methodist Hospital, Omaha, of retroperitoneal abscess and chronic cholecystitis.

Aaron Thomas Colley, Enterprise, Ala.; University of Louisville (Ky.) Medical Department, 1894; member of the Medical Association of the State of Alabama; aged 69; died in December 1938 of coronary thrombosis.

Joseph Henry Boyles, Greensboro, N. C.; College of Physicians and Surgeons, Baltimore, 1903; veteran of the Spanish-American War; on the staff of the Piedmont Hospital; aged 65; died, January 24, of lymphosarcoma.

Albert Smith Parker, Clinton, Wis.; Northwestern University Medical School, Chicago, 1901; member of the State Medical Society of Wisconsin; aged 69; died, Dec. 10, 1938, in Sawtelle, Calif., of arteriosclerosis.

Alexander Rudolph Chillag ✠ Buffalo; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1918; aged 45; died, Dec. 20, 1938, of arteriolar nephrosclerosis and hypertension.

George Wesley Blanchard, Pelham, N. Y.; Medical School of Maine, Portland, 1895; consulting physician to the United States Military Academy at West Point; aged 70; died, January 17, of coronary thrombosis.

Omer Rocelus Alexander, Winter Haven, Fla.; Atlanta Medical College, 1893; member of the Florida Medical Association; aged 66; died, January 25, in Dunedin of coronary occlusion and thrombosis.

Ole Hansen Berg, Chicago; College of Physicians and Surgeons of Chicago, 1896; on the honorary staff of the Norwegian-American Hospital; aged 71; died, January 8, of diabetes mellitus and hypertension.

Arthur Wesley Thomas, Salem, N. Y.; Albany (N. Y.) Medical College, 1904; for many years health officer of Jamaica, Vt., and school director; aged 61; died, Dec. 17, 1938, in Brattleboro, Vt., of myocarditis.

David A. Hewit, Spokane, Wash.; John A. Creighton Medical College, Omaha, 1904; member of the Washington State Medical Association; aged 57; died, Dec. 27, 1938, at Santa Ana, Calif., of arteriosclerosis.

Wilson Canfield, Eaton Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; aged 79; died, January 8, of arteriosclerosis, diabetes mellitus and chronic myocarditis.

Thomas Willett Bishop ✠ South Pasadena, Calif.; Bellevue Hospital Medical College, New York, 1895; medical director and owner of the Pasadena Sanitarium; aged 68; died, Dec. 28, 1938, of cerebral hemorrhage.

Chester C. Impey, Omaha; John A. Creighton Medical College, Omaha, 1903; on the staffs of the Lutheran and St. Catherine's hospitals; aged 58; died, Dec. 11, 1938, in Oakland, Calif., of heart disease.

Charles Pelton Hutchins ✠ Syracuse, N. Y.; Long Island College Hospital, Brooklyn, 1897; served during the World War; aged 66; died, Dec. 28, 1938, of coronary thrombosis and cerebral embolism.

John Lockwood Baker ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1905; for many years member of the city health department; aged 61; died, January 4, in the Swedish Hospital of pneumonia.

Julius A. Fowler, Malakoff, Texas; Louisville (Ky.) Medical College, 1892; formerly county health officer and member of the state board of medical examiners; aged 69; died, Dec. 5, 1938, of bronchiectasis.

Albert F. Merrell, Hallstead, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; member of the state legislature; bank president; aged 72; died, Dec. 2, 1938, of carcinoma of the prostate.

Alexander Lane Brobeck, Hoopeston, Ill.; University of Louisville (Ky.) Medical Department, 1885; member of the Illinois State Medical Society; aged 85; died, January 16, of cirrhosis of the liver.

Henry Delapierre White, Lancaster, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; aged 72; died, Dec. 2, 1938, of coronary thrombosis.

Mark Duane Gundrum ✠ Westville, Ill.; Loyola University School of Medicine, Chicago, 1916; served during the World War; aged 49; was found dead, Dec. 25, 1938, of coronary thrombosis.

Willis E. Stewart ✠ Stratton, Neb.; Central Medical College of St. Joseph, Mo., 1900; medical director and owner of a hospital bearing his name; aged 63; died, Dec. 30, 1938, of chronic myocarditis.

Harvey William Marvin, Washington, D. C.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1897; aged 64; died, Dec. 17, 1938, of cerebral hemorrhage and chronic myocarditis.

Albert Mason Tyler, Long Beach, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; aged 80; died, Dec. 11, 1938, of diabetes mellitus and cerebral thrombosis.

John Sheridan Arnold ✠ Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1896; for many years school medical inspector; aged 73; died, January 6, of cerebral hemorrhage.

William Allan Taltavall ✠ Redlands, Calif.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; aged 79; died, Dec. 22, 1938, of coronary disease.

Richard Alexander Peters, Tipton, Iowa; Rush Medical College, Chicago, 1884; aged 75; died, Dec. 11, 1938, in Chicago of hypernephroma of the left kidney with metastasis to the pubic bone and pelvis.

Arthur Morris Cohen ✠ Philadelphia; University of Pittsburgh School of Medicine, 1925; aged 38; died Dec. 26, 1938, in the Mount Sinai Hospital, Cleveland, of coronary arteriosclerosis and thrombosis.

Walter B. Weaver, Cincinnati; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; formerly county coroner; aged 70; died, Dec. 14, 1938, of arteriosclerosis.

Joseph Roop Smith, Marydel, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; aged 72; died, Dec. 24, 1938, in the Kent General Hospital, Dover, Del., of pneumonia.

Charles L. Ackerman, Brownstown, Ind.; Kentucky University Medical Department, Louisville, 1903; member of the Indiana State Medical Association; aged 71; died, January 4, of pneumonia.

Monroe F. Clouser ✠ Oley, Pa.; Medico-Chirurgical College of Philadelphia, 1907; aged 55; died, Dec. 6, 1938, in St. Joseph's Hospital, Reading, of coronary occlusion and diabetes mellitus.

John Henry Rumpf, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; aged 76; died, Dec. 1, 1938, of heart disease.

John Clyde MacDonald, Edmonton, Alta., Canada; Halifax (N. S.) Medical College, 1895; aged 70; died, Dec. 28, 1938.

Ezra A. Haist, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1895; died, Dec. 12, 1938.

Correspondence

ANATOMY OF SPHINCTER

To the Editor:—In THE JOURNAL February 18 an article by Blaisdell refers to my work on the anatomy of the anal sphincter and the etiology of fistula. After reading Dr. Blaisdell's article several times I feel that both he and the discusser, Dr. Hill, have overlooked several important points in my work and that they have failed to correlate certain age-old clinical observations with actual anatomic manifestations. Some of these observations are that:

1. There is a definite relation between the internal and external orifices of a fistula. A fistula having its external orifice situated behind a plane passing transversely through the center of the anus usually has its internal aperture in the posterior commissure of the anus at points corresponding to 5 or 7 on the clock, the posterior median line being considered as 6 o'clock.

2. A subcutaneous fistula has its external opening within 1 inch of the anus and the internal opening external to Hilton's white line.

3. In submuscular fistulas the internal opening is usually between the sphincters.

The explanation of these observations is contained in my article on this subject published in *Surgery, Gynecology and Obstetrics* in May 1931. It demonstrates that the course of fistulous tracts does not follow the intermuscular septum but, in those cases in which the fistula passes into the ischiorectal fossa, the internal opening corresponds to the points at which the vessels traversing the ischiorectal fossa enter the submucous region of the anus, namely 5 and 7 o'clock posteriorly.

The external longitudinal coat of the large intestine is at best a rather weak structure. Some of the fibro-elastic terminations of this coat of the bowel pass through the internal sphincter to the submucous region caudad to the muscularis mucosae; others pass between the layers of the external anal sphincter muscle to insert into the cornified skin around the anus, and still others insert into the levator ani muscles. These observations are clearly portrayed in my article on Hilton's white line in the *Annals of Surgery* of July 1935. Dr. Blaisdell has apparently made the same mistake as many other workers in this field who have considered the anatomy from the observations made on surgical specimens and autopsy material instead of the living patient. An accurate picture of the relationship of the various muscles cannot be obtained after death because the muscles are relaxed and do not maintain their normal positions. Hilton emphasized this fact when he referred to his white line as being present "in the living." When the sphincters are contracted the external sphincter is caudad to the internal sphincter, which is the thickened termination of the inner circular coat of the rectum. The strongest coat of the intestine, as every surgeon knows, is the submucous coat. This is the coat which is used in the making of catgut. It is also the coat through which the surgeon likes to have his intestinal suture pass in order to secure firm union. This fact was emphasized by Halsted and Gross. Microscopic study of the anal region discloses that the thick fibrous area described by Milligan and Morgan and quoted by Blaisdell as the intermuscular septum is really a much thickened submucous layer.

Although the anatomy of the external sphincter muscle of the anus does follow a certain general pattern, it varies so greatly in individual specimens, as disclosed by my studies, that it cannot account for the more or less constant location of the internal opening of the fistula.

The points raised by Blaisdell on the subjects of cutting the muscles during operations on a fistula, the dangers of dilating the rectum, the physiology of the sphincter muscles and the observations made on palpation of the anus are all discussed in my articles already cited.

ROBERT I. HILLER, M.D., Milwaukee.

COINS COMMEMORATING PHYSICIANS

To the Editor:—In THE JOURNAL, Aug. 27, 1938, page 863, Dr. E. F. Kiser stated that he knew of no coin bearing the portrait of a physician other than the one struck by Austria in 1929 commemorating Theodor Billroth.

Lithuania in 1936 commemorated Dr. Jonas Basanavicius on a 5 litas silver coin, and Brazil in 1937 struck a 400 reis nickel coin with the portrait of Oswaldo Cruz.

I should be glad to hear from interested physicians if other such coins have been issued by any country.

L. GRANT GLICKMAN, M.D., Minneapolis.

A SIMPLE METHOD OF PLASMA TRANSFUSION

To the Editor:—The intravenous administration of blood plasma is recognized as a rational procedure in the therapy of secondary shock resulting from loss of blood plasma and consequent increase in concentration of the blood, as in crushing injuries and burns. Although whole blood transfusions are of therapeutic value in these conditions, the red cells serve no useful purpose and tend to prevent the rapid correction of increased blood viscosity. It can be said, with possibly some reservation, that plasma transfusion also appears to be logical in hypoproteinemia resulting from the combination of starvation and parenteral administration of crystalloid solutions in the treatment of acute abdominal disease.

"Lyophile" serum (Flosdorf and Mudd, *J. Immunol.* **29**:389 [Nov.] 1935) has been developed for use in these conditions and has received clinical trial. Unfortunately the preservation of human blood serum in dry form is complex and costly and its development has not yet been carried to a point at which it can be used without the fear of reactions or contamination.

This brief communication is to point out that human plasma is available safely, immediately and cheaply to any one who has access to a blood bank. Stored blood, standing at rest in the refrigerator, separates into plasma and cell layers. During the past six months in the Department of Surgery and Gynecology of the University of Virginia Hospital we have employed the supernatant plasma in cases of shock presenting increased blood concentration and in cases of hypoproteinemia from starvation. In the former group of cases the results have been satisfactory. In the latter group a larger series of cases than ours will be needed before the results can be appraised. The principle is presented therefore only as a suggestion for a method of treatment, obviously safe and theoretically logical.

Whole citrated blood transfusions are given at the University of Virginia Hospital by the closed method, a single flask for collecting, storing and delivering the blood being used. The supernatant plasma can be obtained by aspiration. A sterile glass tube attached to the negative pressure collection apparatus which is used in obtaining blood from donors is carefully inserted in the storage flask and the plasma layer is sucked over into a flask, which is then used to deliver the plasma to the recipient.

The underlying precautions as to typing, cross matching, serologic study and storage period of the blood to be used for plasma transfusion are observed just as though the whole blood were to be employed. The matching must be perfect in both directions—i. e., donor's plasma vs. recipient's cells and recipient's plasma vs. donor's cells—and must be carried out just before use of the plasma. The plasma should be administered immediately after collection in order to avoid bacterial growth from minor degrees of possible contamination from the air. With the precautions used it is obvious that the spilling over of a small portion of the cell layer will not create danger. Nor will it defeat the major purpose of the procedure.

The red cell layer remaining in the donor flask may also serve a useful end. In a number of instances, after proper additional

matching, the erythrocytes suspended in salt solution have been given to patients with anemia. The value of this procedure is as yet undetermined, but it would seem to be logical in cases of hemolytic sepsis in which the essential problem in repeated transfusions is the replacement of red cells and not of plasma.

It is presumed that these simple procedures have occurred to many others dealing with bank blood. In the rapidly growing literature on the blood bank, reference to them has not been encountered.

EDWIN P. LEHMAN, M.D., University, Va.
Department of Surgery and Gynecology,
University of Virginia Hospital.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POLIOMYELITIS VIRUS

To the Editor:—Kindly advise me regarding the following with reference to poliomyelitis: 1. How is the presence of a virus in nasal washings or in stools determined? Has any other method than injection of monkeys been devised? 2. It is stated that there are numerous types of the virus (of poliomyelitis) with different characteristics. How has this been determined? 3. How is it possible to determine whether or not antibodies exist in serum?

M.D., Alabama.

ANSWER.—1. The virus of poliomyelitis is detected in nasal washings or stools by processing the material submitted for the test. Such material is then tested for infectivity by intracranial inoculation in susceptible monkeys. The technic used in preparing this material is that of suspension in a suitable aqueous menstruum with filtration through a bacteria-tight filter, followed by concentration of the fluid medium to a small volume by distillation in vacuo. There is no test for the presence of poliomyelitis virus other than the inoculation test in monkeys.

2. The viruses of poliomyelitis can be defined by two means: (*a*) immunologic properties and (*b*) variable effect following inoculation into monkeys. The immunologic methods that have been used to define the poliomyelitis virus are the insusceptibility of animals to cross inoculation and cross protection tests. The differences in individual properties of the virus include a different mortality rate and extent of paralysis as produced in experimental animals.

3. The means of determining the presence of antibodies in serum are the following: Each serum is tested by mixture with a standard infectious dose of virus and incubated in vitro at 37 C. The mixture is then tested for infectivity in monkeys. If the mixture produces the disease in animals, the serum is said to contain no protective antibodies. These tests may also be carried out on a quantitative basis.

FRÖHLICH SYNDROME

To the Editor:—A boy aged 15 presents a typical picture of Fröhlich's syndrome. Reports regarding the value of pituitary substance in these cases vary widely. What is the best accepted treatment? The patient's chief complaint is perspiring, especially on the hands. Physical examination is entirely negative except for blood pressure of 148 systolic 88 diastolic. What would cause perspiration, granted that it is not due to a nervous cause? How can I reconcile it with pituitary disturbance?

J. J. ZONE, M.D., Wayland, N. Y.

ANSWER.—Opinions vary regarding "the typical picture of Fröhlich's syndrome." This description is often applied to boys who are simply too fat and whose sexual development is somewhat delayed. Many of these boys "straighten around" with a little patience and a weigh. reduction regimen. Williams studied a large group of boys of this type who were admitted to an English school and found that 87 per cent of them became normal spontaneously. This does not mean that the boy described does not have Fröhlich's syndrome; it simply suggests the need for caution in making this diagnosis. It should be added that this "typical syndrome" is found also in many boys who are mentally deficient. Hecker and Warren report many such examples.

Assuming that this patient has Fröhlich's syndrome, there are at least three hormones which may be tried:

1. Pituitary gonadotropic hormone. This hormone, obtained directly from the pituitary, has not been tried in enough cases to warrant any conclusion.

2. Pituitary-like gonadotropic hormones. These have been used more extensively. They are obtained from sources other than the pituitary—usually from the urine of pregnant women or the serum of pregnant mares. They resemble the true pituitary gonadotropic hormone in most ways but probably originate in the chorionic villi and not in the pituitary. The horse serum has not been utilized sufficiently to draw conclusions and has the usual disadvantages associated with the use of any horse serum. The hormone from the urine of pregnant women has been used must frequently but not always in well selected cases and the results are not always evaluated in a critical fashion. In the case mentioned this hormone might be tried. The dosage has varied, but 500 or 1,000 units two or three times a week for ten to twelve weeks should constitute an adequate trial period. A note of caution is not out of order. Thompson and Heckel reported several cases of marked enlargement of the genitalia from the use of this hormone.

3. Testosterone propionate. This may be the method of choice. Testosterone propionate is the male hormone in its crystalline form. A recent article by Kenyon has reviewed this subject and reports some interesting cases. If this hormone is to have any effect in the case described it should manifest itself after a period of from ten to twelve weeks' treatment, the patient being given 25 mg. of testosterone propionate hypodermically each week.

The inquirer does not mention the patient's basal metabolic rate. If this is low, he may need thyroid extract. In any event he should follow a weight reduction regimen although both of these suggestions may affect the interpretation of improvement if endocrine substances are used. The single blood pressure reading may not be significant; it should be checked every hour for twenty-four hours. It probably is not related to the Fröhlich syndrome. The sweating is of questionable significance and may disappear with improvement in the patient's general condition.

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Williams, Pearse: The Imperfectly Migrated Testis: Some Statistical Data, *Lancet* **1**: 426 (Feb. 22) 1936.
Hecker, A. O., and Warren, V. C.: Girdle Type Adiposity Among Mentally Deficient Males, *Am. J. Dis. Child.* **54**: 1257 (Dec.) 1937.
Thompson, W. O., and Heckel, N. J.: Precocious Sexual Development from an Anterior Pituitary-like Principle, THE JOURNAL, May 28, 1938, p. 1813.
Kenyon, A. T.: The Effect of Testosterone Propionate on the Genitalia, Prostate, Secondary Sex Characters and Body Weight in Eunuchoidism, *Endocrinology* **23**: 121 (Aug.) 1938.

COLD ABSCESSES OF OLD AMPUTATION STUMP

To the Editor:—A World War veteran aged 47 suffered multiple wounds of his right leg and thigh and underwent a mid-thigh amputation in 1918. As the result of infection, healing was delayed for more than a year. Since 1920, however, he has worn a prothesis without trouble, except for the removal of two small bits of shrapnel in 1930. Since early in 1937 two small localized, discrete masses about the size of chestnuts have appeared subcutaneously on the anteromedial aspect of the thigh 2 inches below the inguinal ligament just distal to the rim of the prothesis. The masses disappear spontaneously as a rule after two or three weeks and then recur in four or six weeks. They are quite tender. In September 1938 one mass developed into a small "cold" abscess, which was aspirated for examination, then incised. It promptly healed, and the other mass disappeared. Both recurred a month later and disappeared after incision of the abscess. Today, Nov. 21, 1938, I find both have recurred for the third time. The man's general health is excellent. The bacteriologic examination revealed "an acid-fast bacillus resembling the tubercle bacillus." The patient had a negative Mantoux test in a dilution of 1: 500 of old tuberculin. He has no lymphatic enlargement, his red count, white count and differential counts are normal, and his Wassermann reaction is negative. X-ray examination of the stump reveals no disease of the bone nor any shadows of shrapnel. Could this be caused merely by irritation of the artificial limb, although it apparently fits perfectly? Could smegma bacilli gain entry through apparently healthy skin and cause such a condition? Is this condition common among men wearing artificial limbs? Any suggestions you may offer as to cause and treatment will be greatly appreciated.

JOSEPH C. ANDERSON, M.D., Ebensburg, Pa.

ANSWER.—It is probable that in this case the irritation of the artificial limb plays but small if any part. It would seem that this is most likely a tuberculosis of the skin. An attempt should be made to confirm this by further stained slides at the time of the next abscess. Possibly a guinea pig injection would be of use. General measures to improve the man's health, as in tuberculosis elsewhere, should be of value, and when there is any suspicion that one of the abscesses is forming the artificial limb should not be worn.

BODY ODOR

To the Editor:—A patient, white, single and 21, has never been ill. The family history is negative. The menstrual history is normal. Beginning about two years ago this girl noticed a peculiar odor like coffee about her person. This lasted for about an hour or so and then disappeared. Her friends notice it also. The odor does not come from her mouth and appears at irregular times with no apparent relationship to meals or menses. It may occur while she is working or while she is out with friends and it has become most embarrassing. Physical examination, including examination of the urine, is completely negative. The diet has not influenced the condition. Could you possibly suggest a cause and line of treatment?

M.D., New York.

ANSWER.—The study of body odors aroused considerable interest among the dermatologists of former days but nothing has been found in the medical literature of the last several years. The public is now particularly alert in this respect as the result of the insistent advertising of commercial products designed to correct or overcome such odors.

Odors may originate from (1) gas escaping from the bowel without the knowledge of the person, (2) bad breath, (3) discharge from the ears, (4) vaginal discharge, (5) decomposing sweat, sebum or urine on the skin or clothing, or (6) the peculiar odor of freshly secreted sweat. The query seems to rule out all except the last cause. Certain foods and drugs are credited with producing sweat of a peculiar odor. Alcohol, coffee, various ethers, garlic, valerian, asafetida and other gum resins, angelica, truffles, musk, turpentine, tar, sulfur, benzoic acid, iodine, iodides, phosphorus, zinc phosphate and copaiba are listed as having this power.

Nervous influence is also credited with the production or alteration of the body odor. There are many reports dealing with neurotic or hysterical individuals who emanate peculiar odors, pleasant or the opposite, during attacks. Fraud must always be suspected. In the case under consideration, an effort should be made to check the claims of the patient and her friends. She should be examined for a possible parosmia due to organic or functional nervous disease.

If it can be determined that the odor is in the sweat, the axillae may be dabbed frequently with from 1 to 5 per cent solution of salicylic acid in alcohol or from 1 to 5 parts of "solution of formaldehyde-U. S. P." and alcohol to make 100 parts. Potassium permanganate 1 : 3,000 in water may be applied as a wet compress or 1 per cent solution of the same drug may be painted on once a day. Applications about the genitalia must be made with more care. If there is any hyperhidrosis, x-rays filtered through 1 mm. of aluminum, 70 roentgens once a week may be given until the abnormal sweating is checked. If this is not possible, 25 per cent aluminum chloride in distilled water may be dabbed on once every third day and allowed to dry on. No soap should be used immediately before its application, and it must be allowed to dry completely before the clothing is put on. This is too apt to irritate to allow its use in the anogenital region.

The patient must be told repeatedly that others do not notice the odor as she does and that she must not allow herself to indulge in worry over it, for an olfactory neurosis is most difficult to overcome.

STUTTERING

To the Editor:—In May 1938 a woman aged 25, unmarried, a school teacher, was taking 1 grain (0.065 Gm.) of plasmochin daily. After two or three days she developed circumoral and ocular bluish discoloration, abdominal pain, shortness of breath, stuttering and hoarseness, anorexia and constipation. After about two months of tonics (iron, quinine and strychnine) she recovered in all respects except the stuttering. This has remained and becomes worse when she is tired. I will appreciate any comments both as to further treatment and as to the prognosis. Treatment so far has been nothing more than tonics, fresh air and exercise.

WATSON WHARTON, M.D., Smithfield, N. C.

ANSWER.—The patient should begin by taking some short verse and sounding a note over each word, starting the word with a low note and reaching the middle of the word with the octave and then coming down to the low note again on the remainder of the word. This should be practiced for three periods a day, each period being fifteen minutes long and one of the periods occurring before she retires for the night. After the patient can do this note with ease it can then be applied in her conversation over any word in which speech difficulty arises. The idea is to build for the time being a melody control over the speech, since it is impossible to stutter in the melody area. After two or three weeks of practice she may then pick out another short verse and use the note over the whole line instead of each word. To illustrate: In the line "This is the forest primeval" she should start the low note on *thi* of the word *this* and reach the octave on the *i*, drawn out and the *s*, coming down slowly on the rest of the sentence. This second note is then applied in the conversation after it has become easy in place of the first note. Then for the third step another verse is chosen and the note is so applied that the octave is reached in the middle of the sentence. For example, in the line quoted the octave would be reached in the syllable *for* of the word *forest*. The fourth step is to choose a verse which has pictures easy to visualize and learn it and picture the object for which the word stands as that word is uttered. After considerable practice the patient may then make up stories of ten lines or so of something she has seen and can picture easily. When skill has been developed in doing this, the mental picture of the word can be applied in conversation and the note discarded. Fresh air, exercise and rest are all helpful. At the stated age, with careful and faithful practice it would probably take about six months for recovery, perhaps much less, depending on the severity of the disturbance.

LOSS OF SPONTANEOUS MICTURITION AFTER HYSTERECTOMY

To the Editor:—A woman aged 26 was submitted to a subtotal hysterectomy for relief of menorrhagia. Immediately after the operation she voided urine twice. Ten weeks has now elapsed and catheterization has been necessary all the time. Distention of the bladder causes no distress and she cannot void voluntarily. There was nothing out of the ordinary about the operation and no perineal work. The Kahn reaction was negative and urologic examination gave negative results. How common is such an occurrence and what is the recommended treatment?

F. E. BOLLAERT, M.D., East Moline, Ill.

ANSWER.—Difficulty with reestablishment of spontaneous urination occurs most frequently in those cases in which there has been considerable mobilization or denudation of the bladder, with impairment of the nerve supply. In this case the question arises as to whether the bladder was stripped downward from the uterus for a considerable distance. If the patient is otherwise normal, a return of the power of spontaneous micturition is to be awaited with confidence.

A helpful procedure is daily distention of the bladder with sterile water, a rubber catheter and a 50 cc. or larger syringe. The bladder is filled until the patient complains of discomfort; then it is emptied through the catheter. On succeeding days the procedure is repeated, always with avoidance of producing excruciating pain, yet with the intent of ironing out folds and creases sufficiently to induce the return of function. "Distention treatment" has yielded gratifying results in nearly all cases in which there has been a persistent loss of bladder tone.

Except in patients with organic nerve lesions, persistent lack of tone is of extreme rarity, seemingly limited to patients with marked myasthenic symptoms.

TREATMENT FOR DRY SCALP—VITALIS

To the Editor:—What medication would you suggest for a dry scalp? Is "Vitalis" injurious to the scalp or beneficial? Is castor oil or olive oil satisfactory?

M.D., Washington, D. C.

ANSWER.—In all probability the underlying factor producing a dry scalp is seborrhea, of which there are two types. In one variety there is excess oil and this is accordingly termed "oily seborrhea." The other type of seborrhea is the dry type, or "seborrhea sicca." The principal characteristic of this is a dry scaling scalp. The scales themselves may be oily. The hair and scalp are lusterless and the latter is of a grayish hue. There may be moderate itching. In the treatment of all types of seborrhea, sulfur stands first. Among other useful agents are resorcinol, salicylic acid and mercurials such as the ammoniated and the bichloride. It is best to begin with pomades and after improvement of the scalp continue with lotions, which are more elegant and are more appreciated by the patient. The treatment should be continued for a relatively long time, because seborrhea is essentially a chronic disorder. Castor oil and olive oil may be used on the scalp but preferably in combination with some of the agents mentioned. Olive oil may be useful as a shampoo in certain types of seborrhea.

The Bureau of Investigation of the American Medical Association reports that it does not know what "Vitalis" contains. It has received reports from at least two physicians that irritation followed the use of "Vitalis." In June 1937 the Federal Trade Commission at Washington reported that it had obtained a promise from the Bristol-Myers Company to stop representing that its hair tonic, Vitalis, retards falling hair, unless limited to indicate excessive falling hair; that the product, combined with a massage treatment, brings new life and looks to the hair by giving it a chance to grow at the roots and scalp, and that it contains oils that hair requires for health.

GABRIEL'S SOLUTION FOR PRURITUS ANI

To the Editor:—Can you furnish me with information as to the composition of Gabriel's solution, used in the treatment of pruritus ani by injection, its method of use and the rationale?

MARION W. HESTER, M.D., Americus, Ga.

ANSWER.—Gabriel uses two solutions in the treatment of anal pruritus: (1) a 3 per cent solution of ethyl aminobenzoate (anesthesin) with benzyl alcohol (5 per cent) and ether (10 per cent) in sterilized olive oil, and (2) a solution composed of nupercaine (0.5 per cent), benzyl alcohol (10 per cent) and phenol (1 per cent) in sterilized oil of sweet almond. He prefers to give a few large injections rather than a series of small ones. He states that a large initial dose of 10 cc., which is injected about the posterior half of the perianal region, is the most significant feature of the treatment. No injection should be given in the presence of acute, moist dermatitis. A 10 cc. syringe is filled with one of the solutions and a needle 3 cm. in length is attached. The perianal skin is prepared in order to produce as nearly as possible a condition of asepsis. The injection is given through four punctures posterior to the anus. In this region is located the principal sensory distribution to the anus (the inferior hemorrhoidal nerve and the perineal branch of the fourth sacral nerve).

At each puncture 2.5 cc. of the solution is injected in a fan-like manner, and the needle should be inserted deeply so that no surface swelling is noticeable at the conclusion of the injection. Abrasions and excoriations about the anal margins should receive local treatment with medicated solutions, ointments and dusting powders.

A second injection of 10 cc. is given from five to seven days after the first. At the time 5 cc. of the solution is distributed by two punctures in relation to the right anterior quadrant and 5 cc. in relation to the left anterior quadrant.

A third injection of 10 cc. is given a week later. These injections are made "on each side of, and posterior to, the anus. The needle is passed forward in the subcutaneous tissues parallel to the surface, 5 cc. being injected on each side."

Thus a total of 30 cc. of the oily anesthetic solution is given. He warns that careful aseptic technic should be used and says that the best results can be obtained if the patient rests in bed for two or three weeks during the time the treatment is being given. Usually in twenty-four hours after each injection the patient notices a feeling of numbness which lasts for from three to six weeks, and during this time Gabriel emphasizes the importance of local treatment. He says that the solution of nupercaine and oil produces more pronounced anesthesia but believes that it does not last any longer than that produced by ethyl aminobenzoate. He has not found that abscesses have occurred in any of his private or hospital patients and has calculated that for about two thirds of his patients the results have been good. Gabriel: The Principles and Practice of Rectal Surgery, London: H. K. Lewis & Co., Ltd., 1937.

MULTIPLE FETUSES AND PLACENTA

To the Editor:—Are there any data with regard to twin births in which there are one and also two placentas? Do children attached to a common placenta and formed by what appears to be bifurcation ever differ in sex? When each child (fetus) is possessor of its own placenta of course one will admit that there were two ova fertilized at one time, but when there is but a single placenta one suspects that only one ovum was impregnated and that it bifurcated and formed two fetuses. Is it a fact that the mother of the Dionne quintuplets at their birth was delivered of only three placentas and that two of those were bifurcated, indicating that only three ova were involved in the generation? My experience in delivering twin births with the fetuses attached to a common placenta is that they are universally of the same sex; which goes to show that the sex of the fetus is determined before or immediately after growth begins from fertilization of the spermatazoon.

T. H. STANDLEE, M.D., Mirando City, Texas.

ANSWER.—Twins who have had a single placental attachment may or may not be of the same sex. Such a placenta may be the result of a fusion of two separate placentas. It is almost impossible, and according to several authors absolutely impossible, to determine by an examination of the placenta whether twins are the result of a single ovum or of separate ova. Detailed microscopic examination may be of some value, but gross examination is of no value. About 5 per cent of monozygotic or single ovum twins have distinct amnions and chorions. Twins arising from the same ovum are always of the same sex. Those arising from separate ova may or may not be. Sex is determined immediately on fertilization of the ovum and is dependent on the spermatozoon.

The famous quintuplets are monozygotic, all having originated from a single ovum. This fact has been definitely determined by a careful study of their finger-print patterns and other characters. At the present time this method of study is the only reliable way of determining whether multiple births arise from a single ovum. Dr. Dafoe had little opportunity to study the placenta of the quintuplets before it was destroyed, but it was his impression that it consisted of a single large placenta.

Reference:

Newman, Horatio H.; Freeman, Frank N., and Holzinger, Karl J.: Twins: A Study of Heredity and Environment, Chicago, University of Chicago Press, 1937.

LIME DEPOSITS FROM WATER AND WATER SOFTENING

To the Editor:—Our water supply has a high mineral content, particularly calcium, which deposits around the cooling system of the engines used to generate electricity, causing excessive heating. To counteract this a thick liquid called "Sandbaum" made by the Sandbaum Company of Fort Worth, Texas has been used. It is called a vegetable colloid and claim is made that it removes lime deposits without chemical action. It costs $15 for 8 ounces, which lasts about one month. Do you have any information on this product? It seems to me that there are chemical water softeners which would be much cheaper than this. Do ordinary water softeners prevent the deposit of lime on instruments and cooking utensils?

L. W. FORNEY, M.D., Mason City, Neb.

ANSWER.—Without knowing the exact chemical characteristics of the water used it is not possible to advise relative to the economics of water treatment and softening for the plant. Waters having calcium bicarbonates in solution will, of course, precipitate the calcium carbonate when the carbon dioxide, which serves to hold the carbonate in solution, is driven off with heating. As a rule where the quantity of water used for condensers is large and the dissolved solids high, water softening by chemical treatment or by passing the water over zeolites is more economical and satisfactory than batch treatment by various chemicals of a colloidal nature. It would probably be prudent and good economy to consult a qualified industrial chemist with regard to this problem.

NODULAR FIBROSITIS

To the Editor:—I should like information on the nature of the small nodular masses frequently palpable over the sacro-iliac synchondroses. They are smooth, rounded, variable in size, firm in consistency, overlying the joint. I find them more often in women, and they appear to be present in cases of both infected and apparently not infected joints. Although they feel like enlarged lymph nodes, I am inclined to think that they are cartilaginous bodies. Have they any significance?

V. E. POWELL, M.D., Atlanta, Ga.

ANSWER.—Small nodular masses, frequently palpable over the sacro-iliac synchondroses, are most often present in patients who have a general ligamentous relaxation not only in that region but throughout the body. This condition is often present around the time of the menopause, when the metabolic processes are at a low ebb and the patient presents a picture of extreme fatigue with lumbar lordosis and poor posture in general. The masses are similar to, if not identical with what has been called nodular fibrositis, which also may be present about the shoulder region and in the muscles or ligaments of the upper dorsal spine between the blades of the scapulae.

They have been examined microscopically, following excision, and consist of extremely edematous, fibrous, connective tissue. The cause is thought to be a low grade chronic inflammation, probably not on an infectious basis. They are present in many instances when chronic strain or stretching of the superficial ligaments exists. It is probable that any type of chronic irritation in the presence of poor muscle tone and poor venous circulatory return predisposes to the development of these nodules. Such nodules may be expected to disappear when the posture is improved and the muscle tone, strength and circulation are restored to normal.

SCARLET FEVER IMMUNIZATION

To the Editor:—What is the present status of scarlet fever immunization? Should one recommend that all children be given the five doses of scarlet fever toxin? I have not felt that there has been enough evidence to warrant the universal use of the scarlet fever toxin.

M.D., Illinois.

ANSWER.—Inoculation of toxin according to the Dick method for the prevention of scarlet fever is not universally accepted without question. Pediatricians as a rule do not recommend the routine use of this procedure. Only those subjects shown to be susceptible on the basis of a positive Dick reaction should be injected with Dick toxin for the purpose of immunization. Usually a susceptible person who has received the five regular doses of Dick toxin does not develop clinical scarlet fever if exposed to the disease. However, immunization against streptococcic infections is not established. The Dick plan for scarlet fever immunization is carried out in many hospitals and other institutions, where it is of undoubted value.

PRURITUS FROM WATER

To the Editor:—A married woman aged 28 complains of an annoying pruritus, i. e., a generalized itching on her body only after taking a bath. If she washes clothes or dishes she has itching only where the water touches her. When water splashes on her chest when she is bathing her baby the spot where the water touches her body itches. This pruritus occurs regardless of whether she uses soap or not or whether the water is cold or hot. She is fastidious, taking baths at least once daily, often twice daily. Restricting the use of water, i. e., bathing herself, gives her comparative freedom from itching in between bathing. The use of soothing ointments after bathing does not lessen the itching. She is a moderate hyperthyroid, having a basal metabolic rate of + 29, but under medical care her pulse has come down from 115 to 92 and her nervousness has improved greatly. She has no palpable thyroid and no exophthalmos. The urine, Wassermann reaction and blood counts are all negative. What can be done for this woman? Is it possible to desensitize her? Can a cause be found for this itching? Is there anything that can be given to allay her itching after bathing?

THOMAS MESSINA, M.D., Newark, N. J.

ANSWER.—The cause of ordinary bath pruritus is the drying of the skin caused by soap and water and by the dry winter air outdoors and the dry air of heated dwellings. It should therefore be more pronounced in winter than in summer. The case described is an extreme one, probably because of the slight hyperthyroidism. Desensitization is hardly to be hoped for. The itching can be modified or perhaps avoided by using soap and water only on the hands and face, the feet and the body folds. Then the patient should take a colloid bath made with bran, oatmeal or starch. This should be tepid and after it the skin should be dabbed gently until nearly dry, then anointed with 10 per cent borated petrolatum, with rose water ointment or other ointment, or with a lotion, such as the following, originated by Dr. William Allen Pusey:

	Gm. or Cc.
Liquid petrolatum	120.0
Oil of rose geranium	
Oil of bergamot	
Oil of lavender	āā 0.1 or more as desired
Sodium benzoate	2.0
Powdered tragacanth	16.0
Water to make	1,000.0

Phenol to 1 per cent may be added if desired, or any other antipruritic such as solution of coal tar.

The colloid bath is made of bran or oatmeal from 1 to 3 pounds to a 30 gallon bath, boiled for a few minutes in a gauze bag, to keep it out of the drains. This bag and the water in which it has been boiled are stirred about in the bath, and the bag gently squeezed. The starch bath is simpler, for no precautions need be taken to keep it out of the drains. It should be stirred up with cold water until it swells and then placed in the bath. The temperature of the bath water should be about 100 F. so that it may soothe, not stimulate. The patient should be taught that baths are not needed so frequently in winter as in summer, for the skin has less opportunity of becoming dirty.

AMMONIA AND RESPIRATORY SYSTEM

To the Editor:—I should appreciate an answer to the following hypothetic problems, all of which have medicolegal significance: 1. Could the exposure to fumes of ammonia gas in a man aged 54 light up a latent or quiescent tuberculosis? 2. What are the effects of ammonia gas on the respiratory tract? 3. It has been stated that ammonia gas never reaches the lungs. Is this a correct assumption? If so, what is the mechanism that prevents the gas from entering the lungs?

M.D., New York.

ANSWER.—1. Possibly yes, if the exposure to ammonia led to purulent catarrhal tracheitis, hemorrhagic bronchopneumonia, peribronchial pneumonia, pulmonary abscess or any prolonged injury of severe nature to the lower respiratory tract. Tuberculosis is not a common result.

2. Ammonia gas chiefly attacks the membranes of the upper respiratory tract, leading to edema, which edema may be delayed. Through reflex action, ammonia attacking the membranes of the upper respiratory tract may lead to cardiac dysfunction, paralysis of the respiratory center in the brain, convulsive movements and the like. Action on the lower respiratory tract is the same, although less ammonia may reach this portion of the respiratory system.

3. When concentrations of ammonia are high, spasm of the glottis prevents the entry of much ammonia into the trachea. On this account ammonia is commonly classed as an "irrespirable" gas. However, under some circumstances some ammonia may reach the bronchi and bronchioles. It may be doubted that any ammonia as such leaves the terminal air sacs and possibly none leaves the ultimate bronchioles. The reason for this is that the ammonia, immediately on contact with surface tissues, is chemically combined. The action of ammonia within the lung is localized exclusively, or almost exclusively, along the bronchial tree.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Fifth Annual Meeting, held in Chicago, Feb. 13 and 14, 1939

(Continued from page 1288)

DR. JULIAN F. DU BOIS, Sauk Centre, Minn., in the Chair

THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 14—MORNING

Does Medical Licensure Procedure Conform to the Accepted Standards of Medical Education?

DR. A. C. FURSTENBERG, Ann Arbor, Mich.: The principal objective of medical education is the preparation of men and women for the practice of medicine. It must constantly change with the advent of new knowledge and new demands of service. It is impossible to prepare a curriculum which possesses permanent values. Growth and improvement in methods of teaching are imperative, with adjustments based on the changing social needs of medical service, and I doubt that medical education is keeping pace.

One hears dissatisfaction expressed on the count that premedical education deals with abstruse learning and has wandered far from its original purpose. Thirty years ago the premedical course was established to give the student a broad general education before he commenced the study of medicine. I doubt that this objective now dominates the picture. Analysis of the premedical curriculum discloses that it is composed largely of specific science subjects. The addition of numerous science studies has pushed the cultural ones out into the periphery of the curriculum. Students contemplating the study of medicine intuitively seek the science subjects, believing that they offer the best preparation for the study of medicine, and frequently they are urged by educators to take advanced courses in biology and chemistry in order that they may start medical education on the highest possible scientific level. I know of several arts colleges where premedical students are urged to study the anatomy, embryology, biochemistry and physiology of man. Such a program, which includes medical subjects, defeats the purpose for which premedical education was designed. Instructors in medical schools complain of this plan, arguing that it taxes their strength and patience to repair the damage done the students by instruction in basic medical sciences presented from the standpoint of the academician rather than from that of the doctor of medicine. Such a program robs the premedical curriculum of its cultural subjects and deprives the student of his only opportunity to obtain a broad general education before he commences to study medicine.

I urge that greater flexibility in the premedical curriculum be promoted, that it be made less stereotyped and that it be opened up liberally to cultural subjects so that it will give the student a wider range of interests. The term premedical is an unfortunate one. It should not represent a course specifically preparatory to the study of medicine. It should give the student a mature intellect and a well disciplined mind and prepare him for any professional study in which he may wish subsequently to engage.

If the present plan of premedical education fails to fulfil its purpose, the burden of criticism does not all rest with the medical schools. Some of it can be charged to the boards of registration. It is to be remembered that the boards have prescribed certain specific science requirements. They have written them into the laws governing the licensure of physicians, and the physician must present credits in these courses before he is certified for the practice of medicine. What about the student who has not pursued the science courses who

decides at the termination of four years of college that he wishes to study medicine? His predicament is most discouraging, because he finds the doors of the medical school closed to him. He is told that he has made his decision too late, that he should have known that he wanted to study medicine when he entered the freshman year in the arts college and that his only recourse is to return to the literary school for two more years of work in the sciences. I am wondering whether a decision of this character absolves the educator from further obligation to the student. Is the student to be penalized for withholding judgment on a matter of such vital importance as his life's work until he has graduated from the arts college at the age of 21? I have interviewed college graduates with excellent scholastic records who have decided that they wished to study medicine but were considered undesirable candidates by admissions committees because they had not completed the so-called premedical curriculum. Many of these students have been striking personalities, brilliant in their college accomplishments and equipped with a broad cultural education but destitute of the science credits which have been prescribed by law and required by medical educators.

All of which leads me to appeal for a less rigid, less stereotyped premedical curriculum, one that will give the student a broad general education before he commences the study of medicine. If the physician finds a knowledge of physics, chemistry, botany and zoology essential to the practice of medicine, then let no one interfere with the present premedical curriculum. If he can get along, as I do and as many of my colleagues do, without a speaking acquaintance with these subjects, then may I beg that a searching consideration be given to a problem of vital importance to the medical profession.

The second cause of dissatisfaction expressed by medical practitioners and the leading educators pertains to the work in the medical school itself and the methods of presenting it to the students. There is a conspicuous lack of integration of the fundamental sciences and clinical medicine. The time honored system of medical training thrusts the student into two years of arduous study of the basic sciences and then abruptly transfers him to a study of the practical clinical problems in the hospital. In short, there is a wide gap between the basic sciences and clinical medicine; the former are divorced from the latter, with the result that seniors and recent graduates are wofully deficient in a knowledge of the fundamental sciences. This plan is open to criticism when one recalls that half of the period of medical training has been devoted to a study of preclinical subjects. The trouble rests in failure to correlate the basic sciences and clinical medicine. It is futile to expect the student to retain a working knowledge of anatomy, for example, if he is divorced from the subject at the termination of the freshman year in medicine. The introduction of some genuine practical problems into the early years of medical training, and the pursuit of the fundamental sciences not for a greater number of hours but throughout the four year period of medical education in close association with clinical and preventive medicine, would mean that on the day of graduation the student was equipped with a knowledge of the basic sciences as serviceable as his knowledge of general surgery or internal medicine. Let us not be consumed by the ambition to recruit academicians and theoreticians from the student body. Let us focus on our objective, that of preparing men and women for the practice of medicine.

What then are the common interests of medical education and the state boards' procedure for licensure? A study of the boards' questions which serve as an index of the examiner's estimate of the young graduate's professional capabilities is revealing. Three distinct types of questions are usually in evidence: (1) the formal memory question, not expected to elicit a practical answer; (2) the less rigid academic question, which calls for both a theoretical and a practical answer and reveals a comprehensive and well integrated knowledge of the problem, and (3) the technical question, which calls for an immediate practical answer on the mechanics or technic of some particular method or procedure.

The following question is an example of the first type, the formal memory question: Define: (*a*) plica vascularis; (*b*) vitelline duct; (*c*) urachus. What is the student going to do with this question? The answer is "nothing" unless he was fortunate enough to turn accidentally, the night before the examination, to the chapters in his textbook which described these terms. An example of the second type of examination question is "Sketch heart and blood vascular system." Here is a question referring to a subject which was commenced in the anatomy course of the freshman year, elaborated on later in the study of physiology, treated sedulously in the pathology courses of the sophomore and junior years and firmly impressed on the minds of the students in their cardiology of the senior year. What will be the character of the student's response? The answer is "good." Here is a subject which was kept alive throughout the medical curriculum; as it progressed from one year to the other, the student acquired interest and understanding and enjoyed the enlightenment derived from a correlation of theory and practice. As a result the material did not fail of lasting recognition at the termination of the senior year. The student's answer to this question reflects in large measure the extent to which he was trained in the medical school. An example of the third type of question is "Describe the technic of lumbar puncture." Even though this question may be a fair one, I doubt that it has a place in the examination of a student who has just completed his senior year in medicine. To perform a lumbar puncture involves mechanical skill, and the mere knowledge of how it should be done falls short of teaching the student how to do it. This operation requires supple and dexterous hands, which can be trained only by experience. Knowing how to do it is not sufficient; the performance demands exercise, which in the present program of medical education has been left to the practical opportunities of the intern year. An intern service in an accredited hospital is one of the legal requirements for practice in many states, and it would seem wise and expedient to delegate the responsibility of teaching technical procedures to the residents and house officers charged with the duties of postgraduate medical education.

Another problem of mutual interest to the boards of registration and the medical schools deals with the medical practice law which requires the student to present a diploma from a recognized college of medicine which has as a minimum requirement a four year course of eight months in each calendar year. This precludes the possibility of utilizing medical credits obtained in a graduate school or acquired in several summer sessions until it is certified in the office of the registrar that the student has been regularly enrolled in a medical school a full academic period in four calendar years. The student who transfers from the curriculum of public health and preventive medicine and the doctorate of philosophy to the medical school is not permitted to use the medical credits acquired in these fields until he has been registered in his school of medicine for the period prescribed by law. This legal requirement has some serious aspects. The extra expense of tuition and maintenance often imposes a severe financial burden on the student. He seeks advanced work in certain courses but is not always favored by the kind of studies best suited to his needs and interests; he dissipates his time and efforts in byways which do not lead in the direction of his objective; in short, he loses his motivation and finally, in despair, is content to make the best of a period of intellectual decadence until time permits him to take his examinations.

I recognize the magnitude of this academic problem, that it is peculiar to most forms of education, but in determining the qualifications of the doctor let us not overlook his training and preparation in the sociological and humanitarian aspects of medicine. Students today are abysmally lacking in these essentials of practice: a knowledge of human conduct and behavior, an understanding of mental and physical reactions to the emotional influences of life, and an appreciation of the variable human capacities for enduring pain and sorrow and resisting adversity and despair. All these factors comprise the very essence of medical practice. Does the medical student know that most of the practice which he anticipates will consist of patients experiencing some social, economic, moral or religious

conflict, that their physical ills will be a reflection of some emotional state and that drugs and operations will not cure them? From the beginning of premedical education until graduation, and beyond, the training of the doctor is predominantly in the organic sciences. A pain in the head is the result of sinus disease, brain tumor or cerebral arteriosclerosis, and if the student cannot find an organic basis for the headache he loses interest and passes on to his next assignment. No one has ever attempted to impress on him that the headache, in all probability, is due to an emotional conflict as important as an organic disease. Medical education has overlooked and is still overlooking this tremendously important field of medicine.

Examination Results Before Massachusetts State Board of Registration in Medicine

DRS. E. A. KNOWLTON, Holyoke, Mass., and STEPHEN RUSHMORE, Boston: The medical practice act of Massachusetts differs from the acts of all the other states. It provides for one board of seven physicians to examine and license persons who wish to practice the art of healing. There are no secondary boards, such as there are in many states, to license osteopaths, chiropractors, neuropaths, homeopaths, eclectics and whatnot to practice their respective cults. There are two boards which might be considered nonprofessional, one in optometry and the other in chiropody, but persons who wish to treat the sick must be licensed by the one board, the State Board of Registration in Medicine. Excluded from this board are physicians who are in any way a part of a faculty of a medical school, and a majority of the board members may not be members of any one chartered medical society. But the great difference between the Massachusetts act and the acts of other states is the requirement that any graduate from a legally chartered medical school must be accepted for examination. As a result Massachusetts is a great gathering place for graduates of the so-called nonapproved schools, who outnumber those from the approved schools about two to one. A great majority of these applicants fail in the examinations but still they come, year after year.

I have been making a statistical study of the end results of the Massachusetts examinations for 1937 and have prepared charts to present the results. The board is compelled by law to conduct examinations by the conventional written tests and to examine in seventeen subjects. As a result of my study I think that all the schools approved by the Council on Medical Education and Hospitals of the American Medical Association are graduating physicians equally well prepared to care for the sick and to deal with the health problems of the country. It is hard, however, to draw comprehensive conclusions. It is apparent that persons in the highest ranking fourth from the nonapproved schools are better qualified to meet a written examination than those in the lowest ranking sixth from the approved schools. The Massachusetts board has been condemned by the profession at large for licensing so many graduates from nonapproved schools. It has been as severely criticized by the officers of some of the approved schools for the high number of failures among their graduates. The question has often been asked, and I know the board members have often asked one another, whether the 26 per cent of applicants from nonapproved schools who have been licensed are better qualified to practice than the 18 per cent of graduates from the approved schools who have failed to pass and have not been licensed. There are, however, far too many applicants from both types of schools who receive exactly 75, a minimum passing mark.

I am not proud of the method of conducting examinations, which treat far too many subjects. The board members are not teachers or research workers. When the legislature changes the medical practice act so that the educational background of the applicants may be considered and some practical or oral test of their qualifications to practice may be used, the results of the examinations will not be so far out of step with those in other states.

DISCUSSION ON PAPERS OF DR. FURSTENBERG AND DRS. KNOWLTON AND RUSHMORE

DR. J. EARL MCINTYRE, Lansing, Mich.: Dr. Furstenberg has expressed excellent ideas. I have been of the opinion that premedical requirements are dogmatic and biased, too severe. I believe that the work leading to the bachelor's degree in liberal arts is as important as preparing the boy or girl for the medical school, if not more important, because I believe that it provides a broader background, better cultural education. Boards that have the power to fix a standard of both premedical and medical education should give thought to this point. I think that in the future changes which would be for the benefit of the coming generation should be considered.

DR. ERWIN SCHENK, Keokuk, Iowa: The program of medical education has not crystallized; it is so large that no one has caught up with it. The teaching force is not prepared to give the basic science work, and the deans are not high enough to coordinate the work that is going on in their institutions. Some of the latter aim to improve the situation by adding more years of study, but many students are like pitchers—you fill them full and whatever more you pour into them runs over the top. It will be necessary to exercise much more care in the acceptance of applicants by medical schools. The capacity is about so much in too many persons. The best way to cull such persons is to grade the colleges.

DR. A. S. BEGG, Boston: The deans are in a difficult position. They are pushed from below by the attitude of the colleges; they are pushed on one side by the faculty and its demands and on the other side by the student and his wishes, and they are pushed from above by the qualifying examinations. The correlation mentioned by the first speaker is being attempted in many places. In Boston University School of Medicine, clinical correlation exercises are started in the first year. A good many exercises are given in connection with the preclinical sciences by clinicians, who use the information the student has acquired to show him how it applies in medicine. There was an exercise not long ago called eighteen hearts. That happened to be the number of subjects in the dissecting room. The eighteen hearts were brought to the amphitheater, a pathologist rendered a report on each one and then a cardiologist discussed the results of the pathologist's examination. In one case the pathologist said "I suspect that you are going to find small kidneys." The instructor's job after the exercise was to keep the students from going in and taking out the kidneys to see whether he was right. In an exercise on the genito-urinary system the instructor told the students about roentgenograms that show double ureters and explained these on an embryologic basis; the students went back into the laboratory and were much interested in studying the very thing that they had been studying the preceding week, because here was a man who was making his daily bread by knowing such facts. I am not much worried about the waste of time on the part of the brilliant student. He finds other things to do. I have seen few who have been adversely influenced by long exposure to the medical curriculum. When one looks at the results of the examinations in Massachusetts, one is amazed and realizes the weakness of the whole system. I should like to recommend to the Federation of State Boards that it appoint a subcommittee to study the technics and content of state examinations, because I think they are very uneven. It is too bad that in Massachusetts so many persons must be examined in the course of a year. I hope that in 1941 this will be changed a little, but at the same time there ought to be legal provision for a really practical examination of those who come up for licensure.

DR. F. H. MAGNEY, Duluth, Minn.: You have heard the law and the setup in Massachusetts. Let me briefly state the setup in Minnesota. A basic science board eliminates a large number. Candidates for the medical board are mostly University of Minnesota graduates. The university I think has about 600 applicants each year, from which about 100 are selected. The university works well with the medical profession and the Minnesota State Medical Association, so its methods of teach-

ing are much in accord with medical practice. The other candidates are men who are working in the Mayo Foundation at Rochester, which is affiliated with the university. They come from the university medical schools of this country and Canada and they also are a picked group. About the only older men, who have been out of school for any length of time, are men who are put on the faculty of the university. The state board has the discretion of stating what types of candidates or what schools are recognized, as compared with the Massachusetts board, by which any school which is legalized or licensed must be recognized. Minnesota recognizes only class A schools. It is a question whether the board should be too critical in its examinations when the candidates are of such high caliber. A candidate is failed occasionally, but there is no reason why the percentage should be high.

DR. L. J. KOMINSKY, Texarkana, Ark.: I was glad to know that Massachusetts confesses its shortcomings from the medical standpoint. I find through my experience on the state board that there are two branches in which the students are quite lacking, materia medica and therapeutics. Every day the physician is confronted with detail men who know nothing about medicine but who tell him how to treat disease with the remedies put out by their houses. If every doctor had in his office the U. S. Pharmacopeia, the National Formulary and New and Nonofficial Remedies, he could find out whether the preparation in question was in one of these three. If a preparation is not, it should be let alone. I have told that to the young men before the state board in the past two years. In Arkansas, after a lot of tribulations, a basic science board has been established. I want to say for the University of Minnesota that last November one of its graduates, who is now a captain in the Army and Navy General Hospital, made the highest grade that has been made in Arkansas in the past eight years.

DR. G. M. WILLIAMSON, Grand Forks, N. D.: The remarks made by the last speaker are very apt. The universities are not teaching materia medica and therapeutics. Dr. Furstenberg's paper is one of the best I have ever heard. The university medical schools are teaching too scientifically and are not practical enough. The board in North Dakota examines only a small number, and the men are fairly well known before they come up for examination. A candidate either satisfies the board or doesn't satisfy the board. Even if he makes 90 or 95, if he is not the right type to turn loose on the public, he is so notified. One of the best men ever examind, as far as grades were concerned, it would have been a crime to license, because he didn't know anything. He was the most unpractical person ever examined by the board. What can be done with such men? I believe that it would be a good plan to have some of the deans and members of the council at these meetings, to have more plain talk and not to let one group do all the talking and tell us what to do, because the members of the state boards have to pass on the candidates later.

DR. T. J. CROWE, Dallas, Texas: I don't think any of us can know too much about medicine. I am against any attempt to reduce the premedical or medical qualifications. I believe that any man who wants to call himself a specialist should have at least from three to five years of intensive training in an institution devoted entirely to the subject which he is going to take up. I think the board should do something about that phase of the matter. It can be controlled through the hospitals. Now, about the examinations. There are advisory committees and then advisory committees of advisory committees. Why don't we talk about standardizing examinations? Why don't we talk about standardizing with reference to reciprocal relations and with reference to the credits that should be allowed a man who has been engaged in active practice? I should like to have settled, if possible, what credit shall be given the man who has been in active practice and is required to take a state board examination.

Citizenship and Medical Licensure

DR. J. E. MCINTYRE, Lansing, Mich.: This article appeared in full in THE JOURNAL, March 18, page 1075.

Legal Status of the Intern

DR. FRED E. CLOW, Wolfeboro, N. H.: This article will appear in full in THE JOURNAL.

DISCUSSION

DR. FRANK M. FULLER, Keokuk, Iowa: There was no mention in this paper of the type of internship that is now known, at least locally, as a voluntary internship. In order that the term may be understood I will say that men from foreign countries are being sent into various institutions by miscellaneous groups who have enough money to assure the government that their protégés are not going to become public charges. Such foreign physicians are being distributed. I say that because the problem has come up in Iowa, where men have come into the state university hospitals as voluntary interns. This means that, after the university has had its full quota of internships assigned, men are sent in with expenses paid to the extent of $600 a year, as voluntary interns. What is the legal status of interns of this type? When they get through, the board has to have a certificate from the dean or officer of the hospital that they have completed an internship. After having completed a year's internship in Iowa, they are eligible to licensure in the state. The board is concerned as to just how it is going to handle these so-called voluntary internships. To my mind there isn't any such thing. An intern is an intern whether he is voluntary or involuntary. I am asking this in order that some light may be thrown on the problem, which no doubt is going to be more extensive. I have been trying to find out where the idea of voluntary internships originated and who is supporting the unfortunate persons who are being driven out of their own country and brought in here. I should like to know how extensive is the movement toward establishing voluntary internships throughout the country.

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: I did not know until I heard Dr. Clow read his paper that Massachusetts is the only state which licenses interns. I thought that Massachusetts was the last to do anything modern in medical licensure. It has worked out very satisfactorily. There are two types of license, one for the student intern and one for the graduate who is an intern. The licensure provides the board with a registry of all the interns throughout the state. When an intern appears at a hospital, the first thing asked him by the hospital authorities is "Let me see your license."

DR. J. EARL MCINTYRE, Lansing, Mich.: In Michigan the attorney general has ruled that the board has the power of fixing a definite internship period as an educational requirement, and the state has a twelve months rotating internship. The attorney general also has ruled that on completion of this internship, any who practice medicine, either within or without a hospital, thereafter must be registered and licensed by the board. Licensure is therefore required of all second year interns and residents. The attending staff physician is thus not responsible for the intern's or resident's act; the hospital is not responsible because such intern or resident has all the prerogatives of any other doctor of medicine within the state. In other words, the attending physician cannot delegate his authority to practice medicine. He cannot delegate any authority to the intern, resident physician, nurse or technician. This has been a means of solving that particular problem in Michigan.

DR. FRED E. CLOW, Wolfeboro, N. H.: I did not mention in my paper that there are records in New Hampshire of twenty-three malpractice suits brought against interns. Most of these cases, of course, came to nothing, but enough have had to be settled to disturb the board. Apparently the lawyer has found that he cannot recover from the hospital except in rare instances, and he has learned to go back of the hospital to the young man who is the cause of the alleged malpractice. These suits have a nuisance value at least, so that there is often involved the payment of some money in order to clear the young man. When he is an unlicensed person, he is put in an extremely vulnerable position. I cannot answer Dr. Fuller's question. Voluntary internship is not known, at least by that name, in my part of the country, and I do not know of any men who have been placed in hospitals under such circumstances.

The Objectives, Aims and Activities of the Commission on Graduate Medical Education

DR. ROBIN C. BUERKI, Chicago: The Commission on Graduate Medical Education is still less than a year old, and obviously it is not prepared as yet to give specific answers to any of the questions that have been raised. I should like, however, to present some of these questions and suggest possible answers. In a statement of the scope of the work of the commission, the chairman said in part:

"The Commission on Graduate Medical Education will undertake the formulation of the educational problems and principles involved in the continuation of medical training for a period of years after graduation, in the adequate training of specialists and in making recommendations for those in practice, general and limited, to keep abreast of new developments in diagnosis, treatment and prevention. It is the opinion of the commission that these phases of graduate medicine are closely related and should be regarded broadly as parts of a single problem.

"The educational problems of the internship need definition in the larger concept of medical education because of the great confusion that now exists among physicians, hospitals and medical faculties regarding this vital, though frequently unsatisfactory, phase of training. There is need of integrating the hospital training with the undergraduate course and of making it more effective as a preparation either for general practice or for advanced training for a specialty.

"Little attention has yet been given to the opportunities for training for specialization of the large number of practitioners who are otherwise qualified and desire to become fully equipped in a limited field of practice. Sound plans which will meet individual conditions and permit these physicians to secure an adequate preparation in a special field must be worked out.

"In recognition of the need of a study of the whole situation in graduate and postgraduate medical training, it seems desirable that there be set up a group to mobilize the best current opinions and experience and to formulate principles and standards of training which may be of help in setting up programs of instruction. Such a group should comprise representatives of the profession, the specialty boards, the hospitals, the medical schools and the state regulatory bodies familiar with these problems. It would develop standards of training which would be of help to the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and other agencies concerned with the inspection and evaluation of facilities. There should be no duplication of effort or conflict with such agencies.

"The Advisory Board for Medical Specialties is more representative than any other body of the different interests involved and it was felt that it should create a group to study the whole problem; hence its action in Atlantic City on June 6, 1937, creating the Commission on Graduate Medical Education.

"It was understood that the commission would concern itself primarily with those problems which are common to all the specialty boards and organizations dealing with the different aspects of graduate medicine and would not attempt to accredit or evaluate facilities or perform other administrative functions now carried out by the Association of American Medical Colleges, the American Medical Association, the American College of Surgeons and other administrative agencies. Obviously the material developed would be made available to the interested groups."

The director of study began work March 1, 1938. In a discussion of the whole problem with more than 400 persons from all parts of the country, emphasis has been placed on the fact that this is not a survey. Almost without exception the men visited were in enthusiastic accord with the aims of the commission, feeling that lack of adequate training and opportunities for continued education constitutes one of the greatest problems confronting the medical profession today.

There seems to be a definite feeling that the internship should be more closely related to the undergraduate years and should be considered as such by the staffs of hospitals and the faculties of the medical schools. Partly because almost all medical students after graduation serve as interns in hospitals and partly because medical schools do not feel that at present they have adequate control over the type of internship offered, it seems to be an open question as to whether or not an internship should be required for graduation. The general feeling is that the average internship is not satisfactory from an educational standpoint, but there is considerable divergence of opinion as to how the educational content of the internship shall be improved.

The vast majority of the internships offered are rotating services; from 1934 to 1938 these increased from 4,569 to 5,697. In spite of the fact that recently there was a decrease in the number of straight internships from 781 in 1934 to 442 in 1938 and an increase in the number of mixed internships from 853 in 1934 to 1,212 in 1938, there is still a rather strong feeling on the part of some authorities that a straight service is desirable. A rather large group of men feel that even in a rotating internship some of the more highly specialized services should not be offered to interns.

There seems to be almost complete unanimity of opinion that a residency of three or more years is the ideal way to prepare a man for the practice of his chosen specialty, nor does there seem to be any major disagreement concerning the ruling of the various specialty boards that a portion of the residency shall contain work in the medical sciences. The majority of the specialty boards feel that such work should train the resident to approach his specialty from the point of view of the scientist and need not necessarily make him more proficient in all the basic science courses; the men in the basic sciences as a whole feel that neither the budgets nor the staffs of their departments are adequate to offer this work and suggest the possibility of training individual clinicians who are members of the various clinical departments and who in turn can give this work to their own residents or, in large groups, to the prospective candidates for certification in their specialty.

There is considerable agitation to have more opportunities available for men already in practice to develop proficiency in their specialty. The general reaction is that short courses, if given for graduates to perfect themselves in a specialty, are not educational in fact and do not train the man to be competent in his chosen field. There is a definite feeling, and figures substantiate it, that the good residencies are too few to produce enough trained men to meet the needs for the replacement in and the growth of the specialties. It is gratifying to note, however, that the number of all residencies has increased by 50 per cent in the last five years, from 2,373 in 1934 to 3,492 in 1938, and that the number of residencies of three or more years in length has trebled in the same period, having increased from 332 in 1934 to 1,092 in 1938. Many of these residencies are not really satisfactory.

The solution of the problem of postgraduate medical education for the general practitioner is a most difficult problem. After the physician has become recognized in his specialty, his contact with national societies and his willingness to read in most instances keeps him abreast of the advances in his specialty, but this is not true in the main of the general practitioner. Some persons have the definite feeling that the only way to keep the rank and file of the profession abreast of the advances in medicine is to give limited licenses, even though they recognize the difficulties involved in such a suggestion. It has also been suggested that a specific amount of postgraduate work be essential for continued membership in the local county medical society.

After eleven months of travel from one end of this country to the other, I feel sure that the medical schools must take more than an academic interest in the building and operation of a coordinated program of medical education that will follow their students from the time of graduation until they retire from the active practice of medicine. In this broad and comprehensive program hospitals will play an increasingly important part, but they must await the constructive leadership that only the medical schools can supply. It is obvious that the solution which I am proposing involves a large expansion of thought and activity on the part of the medical schools. Leadership in meeting this great series of problems must come primarily from those who have heretofore carried the major responsibility for medical education. No other group has the richness of experience in medical education that medical educators have.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 1, page 1288.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, May 1-2 (Part II only—limited to a few centers), June 19-21, and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Oral* examinations for all candidates, St. Louis, May 13-14. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral, clinical and pathological examinations for all candidates, Part II examinations (Groups A and B) will be held in St. Louis, May 15-16. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various cities throughout the country, Aug. 5. *Oral.* St. Louis, May 15 and Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: St. Louis, May. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: St. Louis, May 12-13 and Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 15. Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, May 13. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: St. Louis, May 11-14. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part II.* New York, May 8 and May 9. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: White Sulphur Springs, W. Va., May 26-28. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Vermont Endorsement Report

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports nine physicians licensed by endorsement from July 25 through Dec. 17, 1938. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine		(1927)	N. B. M. Ex.
Harvard University Medical School		(1929)	N. B. M. Ex.
Tufts College Medical School		(1937)	New Hamp.
Cornell University Medical College		(1924)	New York
Hahnemann Med. College and Hospital of Philadelphia		(1937)	Delaware
University of Vermont College of Medicine		(1937, 4)	N. B. M. Ex.

California October Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 18-20, 1938. The examination covered nine subjects and included ninety questions. An average of 75 per cent was required to pass. Sixty-four candidates were examined, fifty-four of whom passed and ten failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1937) (1938)	75.1, 75.9, 78, 80.2, 81, 81.1, 83, 86, 86.3, 86.6, 86.8
Stanford University School of Medicine		(1938)	83.9
University of California Medical School		(1938)	80.6, 85.1
Loyola University School of Medicine		(1938)	80.3
Northwestern University Medical School		(1937) (1938)	82.3, 79.9, 86.7,* 88
Rush Medical College		(1937) (1938)	85.7, 85.4
School of Medicine of the Division of Biological Sciences		(1937)	85.2
University of Illinois College of Medicine		(1937)	79.9
University of Kansas School of Medicine		(1937)	87.1
University of Louisville School of Medicine		(1938)	81
Harvard University Medical School		(1935) (1936)	85.8, 87.2
University of Michigan Medical School		(1937)	87.3
Wayne University College of Medicine		(1938)	80.7
Washington University School of Medicine		(1934)	82.3
Creighton University School of Medicine		(1938)	83.7, 83.9
Syracuse University College of Medicine		(1916)	78.7
University of Rochester School of Medicine		(1938)	81.7, 83.3
University of Oregon Medical School		(1938)	81.7, 83.8
Hahnemann Med. College and Hospital of Philadelphia		(1938)	84.8
Jefferson Medical College of Philadelphia		(1937)	85.6
Temple University School of Medicine		(1938)	80
Marquette University School of Medicine		(1938)	83.3, 83.6
University of Toronto Faculty of Medicine		(1937)	81
McGill University Faculty of Medicine		(1934) (1937)	84, 80.6, 83.7, 83.9
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1923) (1924)	79, 84.1
Hamburgische Universität Medizinische Fakultät		(1922)	83.3
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main		(1921)	79.4
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1925)	90.4
Universität Köln Medizinische Fakultät		(1920) (1921)	80.7, 86.9

School	FAILED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1937)	74.3
College of Medical Evangelists		(1938)	73.3
Stanford University School of Medicine		(1936)	64.8
Rush Medical College		(1938)	73.4
Creighton University School of Medicine		(1938)	71.4
Woman's Medical College of Pennsylvania		(1936)	74.7
Marquette University School of Medicine		(1938)	73.2
McGill University Faculty of Medicine		(1937)	72.8, 74.1
Latvijas Universitäte Medicinas Fakultäte, Riga, Latvia		(1928)	39.3

Thirty-nine physicians were licensed by reciprocity and three physicians were licensed by endorsement from September 29 through December 14. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Stanford University School of Medicine		(1936)	Washington
University of California Medical School		(1935)	New York
George Washington University School of Medicine		(1929)	New York
Rush Medical College		(1937)	Illinois
University of Illinois College of Medicine		(1928)	Missouri
Indiana University School of Medicine		(1930)	Indiana
State University of Iowa College of Medicine		(1927), (1936)	Iowa
University of Kansas School of Medicine		(1933)	Kansas
Johns Hopkins University School of Medicine		(1937)	Maryland
Harvard University Medical School		(1928)	Minnesota
University of Michigan Medical School		(1929, 2)	Michigan
University of Minnesota Medical School		(1930) (1926), (1931)	S. Dakota, Minnesota
University of Missouri School of Medicine		(1908)	Idaho
St. Louis University School of Medicine		(1927)	New York
Washington University School of Medicine		(1936)	Missouri
Creighton University School of Medicine		(1926), (1935)	Nebraska
University of Nebraska College of Medicine		(1934)	Nebraska
Bellevue Hospital Medical College		(1888)	Ohio
Cornell University Medical College		(1933)	New York
Long Island College of Medicine		(1935)	New York
New York University College of Medicine		(1935)	New York
Western Reserve University School of Medicine		(1932)	Ohio
University of Oklahoma School of Medicine		(1932), (1934)	Oklahoma
University of Oregon Medical School		(1936, 2)	Oregon
Jefferson Medical College of Philadelphia		(1918) (1935)	Penna., Washington
University of Tennessee College of Medicine		(1933)	Tennessee
University of Texas School of Medicine		(1937, 2)	Texas
Marquette University School of Medicine		(1937)	Wisconsin
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest		(1894)	New York
University of Edinburgh Faculty of Medicine		(1931)	New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1932)	N. B. M. Ex.
University of Colorado School of Medicine		(1917)	U. S. Navy
Yale University School of Medicine		(1927)	N. B. M. Ex.

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Hawaii October Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, Territory of Hawaii, reports the oral and written examination held at Honolulu, Oct. 10-13, 1938. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Ten candidates were examined, nine of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Stanford University School of Medicine		(1936)	79.1
Loyola University School of Medicine		(1937)	82.4
Northwestern University Medical School		(1936)	87
Rush Medical College		(1935)	87.7
University of Louisville School of Medicine		(1936)	81.7
Washington University School of Medicine		(1936)	82.3
Pennsylvania Medical School, St. John's University, Shanghai		(1935) (1938)	78.3, 79
Woman's Christian Medical College, Shanghai		(1938)	77.8

School	FAILED	Year Grad.	Per Cent
Nippon Ika Daigaku, Tokyo		(1937)	40

Five physicians were licensed by endorsement from July 27 through September 24 after an oral examination. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1934)	N. B. M. Ex.
Tulane University of Louisiana School of Medicine		(1937)	N. B. M. Ex.
University of Michigan Medical School		(1932)	N. B. M. Ex.
Washington University School of Medicine		(1933)	N. B. M. Ex.
Hahnemann Med. College and Hospital of Philadelphia		(1935)	N. B. M. Ex.

Kentucky December Examination

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 6-8, 1938. The examination covered eleven subjects and included 110 questions. An average of 70 per cent was required to pass. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Louisville School of Medicine		(1938)	79
Temple University School of Medicine		(1937)	76

Fourteen physicians were licensed by reciprocity from September 2 through December 19. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1936),	(1938)	Michigan
Tulane University of Louisiana School of Medicine	(1936)		Louisiana
Johns Hopkins University School of Medicine	(1935)		Maryland
University of Michigan Medical School	(1933)		Michigan
University of Minnesota Medical School	(1934)		Minnesota
Ohio State University College of Medicine	(1936)		Ohio
University of Cincinnati College of Medicine	(1932),	(1935)	Ohio
Western Reserve University School of Medicine	(1937)		Ohio
Vanderbilt University School of Medicine (1932), (1935), (1936), (1937)	Tennessee		

Indiana Reciprocity and Endorsement Report

Seventy-one physicians were licensed by reciprocity and two physicians were licensed by endorsement during 1938 by the Indiana State Board of Medical Registration and Examination. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1935),	(1936)	Arkansas
University of Colorado School of Medicine	(1936)		Colorado
George Washington University School of Medicine	(1935)		Maryland
Howard University College of Medicine	(1936)		Tennessee
Loyola Univ. School of Med. (1918), (1932), (1935),	(1937)		Illinois
Northwestern University Medical School	(1923)		Mississippi, (1926), (1936) Michigan, (1935) Missouri, (1936) Ohio, (1932), (1933), (1936) Illinois
Rush Medical College	(1925)		Kansas, (1935) Ohio, (1936) Utah, (1928), (1930), (1932, 2), (1936, 2) Illinois
School of Med. of the Division of Biological Sciences	(1936)		Illinois
State University of Iowa College of Medicine	(1933),	(1934)	Iowa
University of Kansas School of Medicine	(1935, 2)		Kansas
University of Louisville School of Medicine (1929), (1930), (1936, 3), (1937)	Kentucky		
Tulane University of Louisiana School of Medicine	(1935)		Louisiana
Johns Hopkins University School of Medicine	(1928)		Louisiana, (1934), (1935) Maryland
University of Maryland School of Medicine	(1912)		Maryland
Harvard University Medical School	(1933)		Michigan
University of Michigan Department of Medicine and Surgery	(1908)		Michigan
University of Michigan Medical School (1927), (1931),	(1936)		Michigan
St. Louis University School of Medicine	(1932)		Vermont, (1932), (1936, 2) Missouri
University of Nebraska College of Medicine	(1934)		Missouri
Columbia Univ. College of Physicians and Surgeons	(1935)		New York
University of Rochester School of Medicine	(1931)		Ohio
Eclectic Medical College, Cincinnati	(1936),	(1937, 2)	Ohio
Ohio State University College of Medicine	(1935)		Ohio
University of Cincinnati College of Medicine	(1932)		Kentucky, (1935), (1937) Ohio
Western Reserve University School of Medicine	(1933)		Ohio
University of Oklahoma School of Medicine	(1936)		Oklahoma
Temple University School of Medicine	(1934)		New Jersey
University of Pennsylvania School of Medicine	(1916)		Kentucky
Medical College of the State of South Carolina	(1934)		N. Carolina
Meharry Medical College	(1936, 2)		Tennessee
Wisconsin College of Physicians and Surgeons	(1911)		Wisconsin
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Pecs	(1923)		New York
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia	(1934)		New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
School of Med. of the Division of Biological Sciences	(1937)		N. B. M. Ex.
University of Michigan Medical School	(1935)		N. B. M. Ex.

Mississippi December Report

Dr. Felix J. Underwood, secretary and executive officer, Mississippi State Board of Health, reports nine physicians licensed by reciprocity at the meeting held in Jackson, Dec. 8, 1938. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Louisville School of Medicine	(1910)		Kentucky
Tulane University of Louisiana School of Medicine	(1938)		Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons	(1916)		W. Virginia
University of Pennsylvania School of Medicine	(1936)		Texas
Meharry Medical College	(1935)		Tennessee
University of Tennessee College of Medicine	(1936),	(1937)	Tennessee
Vanderbilt University School of Medicine	(1934)		Tennessee
University of Texas School of Medicine	(1921)		Texas

Book Notices

Shock and Related Capillary Phenomena. By Virgil H. Moon, A.B., M.Sc., M.D., Professor of Pathology, Jefferson Medical College, Philadelphia. Cloth. Price, $3.50. Pp. 442, with illustrations. New York, Toronto & London: Oxford University Press, 1938.

The purpose of the book is to present the subject as a pathologic entity. The author states that the major advances in solving the shock problem have been made by physiologists and surgeons, while the contributions made by pathologists have been negligible. In order to remedy this defect, the author attempts to discuss shock as he would any other pathologic condition. The book begins with an excellent review of current knowledge concerning the capillaries; their distribution, function, reactions, permeability and local capillary phenomena associated with the action of histamine, with inflammation and so on. Then follows a brief but good review of the theories concerning shock. The remaining portion of the book, with the exception of an appendix on practical considerations, is devoted to a presentation of the pathologic processes and morphologic changes in shock, to the evidence for the special theory favored by the author, that of traumatic toxemia, and to an attempt to correlate the pathologic processes and morphologic changes in traumatic shock with those found in many other pathologic conditions, including anaphylactic shock, burns, edema and terminal pneumonia, on the basis of primary injury of the capillaries with subsequent loss of circulating fluid. The book is written with the spirit of a crusader. Few readers familiar with the present status of the knowledge of shock will disagree with most of the material presented. The author has summarized in a masterly manner the opinions and conclusions of numerous investigators employing diverse methods of approaching the many different phases of the problem. Such a unanimity of approval will probably not be given the author's considerations of the toxemia theory and his apparent belief that the shock problem has been definitely solved. The book is recommended for those desiring a well written and stimulating review of the known facts concerning capillary phenomena. Pertinent references and a suitable index are given. The print is large and easy to read.

A Study of Asbestosis in the Asbestos Textile Industry. By Waldemar O. Dreesen, Passed Assistant Surgeon, and others. From the Division of Industrial Hygiene, National Institute of Health. Prepared by direction of the Surgeon General. U. S. Treasury Department, Public Health Service. Public Health Bulletin No. 241. Paper. Price, 20 cents. Pp. 126, with 64 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1938.

This complete study of the asbestos industry made by the Division of Industrial Hygiene of the United States Public Health Service ranks with the best of the industrial studies that this group has produced. Initiated by the State Board of Health and by the Industrial Commission of North Carolina, the objectives of the study were to determine the effects of continued inhalation of asbestos dust, identifying the various processes which produce the dust, and recommending at the same time the indicated engineering improvements to control the pollution of the atmosphere. The study endeavors to determine what concentrations of asbestos dust can be safely borne. The report begins with a description of the various processes in which asbestos is used in combination with cotton to fabricate various textiles. A brief comparison is made with the similar industry in Great Britain. An analysis of the various occupations involved was made and dust samples were collected by the standard impinger method with reference to each occupation. It was demonstrated that it was possible to reduce the dust concentration below five million particles per cubic foot. In all, about 550 asbestos workers received thorough physical examinations, including a carefully worked out occupational history. Both the x-rays and the fluoroscope were used and the observations were carefully tabulated. The investigators classified the asbestosis cases on the basis of x-ray interpretations in three stages, although pointing out that it is not practicable to establish a sharp line of demarcation between the stages. Of a total of 445 workers examined with x-rays, seventy-three were diagnosed as having asbestosis. It should be remembered that all examined in the groups were individuals who were working daily. Including

both workers still on the job and those who had been discharged or laid off, 27.5 per cent were found to have asbestosis. This figure might be compared with the results of the silicosis studies at Picher, Okla., where 21.3 per cent had silicosis, and the study of anthracite miners by this same group, among whom the prevalence of anthracosilicosis was 23 per cent. The report includes a chapter on pathology. The numerous illustrations, both reproductions of slides as well as lung specimens and x-ray films, are excellent. This is an admirable report, is a substantial contribution to the general subject of pneumoconiosis, and will go a long way toward clarifying some of the doubtful aspects of asbestosis.

The Practical Applicability of the Cardio-Pulmonary Function Test. By Gustav Nylin. Acta medica scandinavica, Supplementum 93. Paper. Pp. 24, with 25 illustrations. Stockholm, 1938.

In attempting to evaluate the functional capacity of the heart, various investigators have tried many types of tests. Perhaps the most valuable functional test is that which measures the energy cost of physical exercise. Among such tests is the one developed by Nylin. The results of his experience are presented in this monograph. The test used by him consists of three degrees of exertion on a pair of semicircular stairs each having six steps going up and six going down. The effect of these exercises on the oxygen consumption was determined by comparing the basal rate with the increased rate occurring from two to five minutes after completing the exercise. Both metabolic tests were run with the patient reclining in bed. As the result of an experience on 265 normal persons and twenty-two patients with various forms of cardiac and pulmonary disease, the author states that this test gives an estimate of the functional capacity of the heart when the state of the pulmonary system is taken into account. It is unfortunate that he uses the term "relative oxygen debt," because a sample of the excess oxygen consumption of exercise need not necessarily be a measure of the entire extra oxygen consumption caused by the exercise. Nevertheless, viewing it entirely from its practical utility the method developed seems promising and deserves further trial. The presentation is simple and somewhat superficial. It should nevertheless be appealing to those interested in objective methods of estimating cardiac capacity and cardiac reserve. While it is meritorious to seek objective methods of estimating cardiac capacity, no method will turn out to be as practically efficacious as a careful inquiry by the physician into the ability of the patient to do his daily activities and to meet the extra strains which he is forced to cope with. There is no short cut to a careful, history. It is true, however, that the discipline placed on the clinician by information derived from proper objective tests may at times be invaluable.

Biokhemichni zmini krovi i spinnomozkovoï ridini pri uremiï. [By] M. L. Evtukhova. [Biochemical Changes in Blood and Cerebrospinal Fluid in Uremia.] Paper. Price, 6 kopecks. Pp. 166. Kiev: Vidavnitstvo Akademiï Nauk URSR, 1938.

The author studied biochemical variations in the blood and the cerebrospinal fluid of thirty-nine uremic patients. The studies included the alkali reserve, most of the nitrogenous fractions of the protein metabolism ordinarily determined in the blood, the inorganic phosphorus, K, Ca, the chlorides, Na, cryoscopy, sugar, cholesterol and lactic acid. The simultaneous study of the blood and the cerebrospinal fluid is valuable from both the diagnostic and the therapeutic points of view. Thus, data obtained from the group of patients suffering from "azotemic" uremia, cases characterized by the disturbance of the nitrogen excretory function without a disturbance of the acid excretory function and without any manifestation of disturbance of the permeability of the hemato-encephalic barrier, permitted the author to draw the conclusion that the process can be reversed by elimination of the causes giving rise to accumulation of nitrogenous waste products, as, for example, infection or dietetic disorder. In another group in which, along with the azotemia, there were observed a sharp fall in the alkali reserve and manifestations of the disturbance of the permeability of the cell membrane, specifically the hemato-encephalic barrier, the prognosis was unfavorable and treatment powerless. The group with acute convulsive uremia justifies the assumption of cerebral edema and the use of spinal puncture. The author's thesis is that comparative study of the biochemical changes and the clinical manifestations rather than the search for the hypothetic uremic toxin will lead toward the solution of the essential pathogenesis of uremia.

This suggestive contribution to the clinical subject of uremia is written in the Ukrainian. It contains summaries in Russian and English.

Babies are Human Beings: An Interpretation of Growth. By C. Anderson Aldrich, M.D., Associate Professor of Pediatrics, Northwestern University Medical School, and Mary M. Aldrich. Cloth. Price, $1.75. Pp. 128, with 5 illustrations. New York: Macmillan Company, 1938.

This book, written by a pediatrician and his wife, presents the problem of growing up from the point of view of the child. This is indicated by various chapter headings, such as "The Baby Dilemma," "The Baby Responds to the World" and "The Baby's Way of Eating." Emphasis is laid especially on the response of the infant and on ways and means of making his environment as helpful as possible in developing his own personality and in fitting himself into this world without sacrificing his enthusiasm and energy, which is so evident at 2 and 3 years of age and which so often is lost later on. The volume should be helpful in solving many of the problems which the physician meets, not so much by the specific advice given in a particular situation as by serving as a basis for working out problems. For parents it should prove of great value. It is a book not only to be read but to be reread and studied, chapter by chapter, by both mother and father. It will give the parents an insight into what their offspring is trying to accomplish in growing up and how they as parents can help in making it possible for him to reach maturity with the least number of harmful bumps and with his native enthusiasm intact.

The Principles and Practice of Perimetry. By Luther C. Peter, A.M., M.D., Sc.D., Professor of Ophthalmology in the Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Fourth edition. Cloth. Price, $4.50. Pp. 331, with 227 illustrations including 5 colored plates. Philadelphia: Lea & Febiger, 1938.

This book has long been of established value to the ophthalmologist and practitioner in allied branches of medicine. The new edition is revised and enlarged with new illustrations and tables to clarify the text and points of difference. As in former editions, the various phases of perimetry are presented in logical sequence. Part I consists of a brief but adequate description of the anatomy and physiology of the visual pathway. Part II describes the extent of the normal visual fields and physiologic principles which govern and influence them. Part III outlines in a clear and detailed manner the method and technic of taking fields. The various instruments are described. Part IV discusses the general pathology of the visual field. The special pathology of fields is dealt with in Part V. In part VI the fields in functional nervous disease is discussed. A good bibliography is added for those who are interested in various problems which perimetry presents.

Urology. By Daniel N. Eisendrath, M.D., Consulting Urologist to the American Hospital, Paris, France, and Harry C. Rolnick, M.D., Attending Urologist, Michael Reese, Mt. Sinai, and Cook County Hospitals, Chicago. Fourth edition. Cloth. Price, $10. Pp. 1,061, with 762 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1938.

This is an excellent textbook for students and a valuable manual for the general practitioner. The personal experience of the authors is apparent and their therapeutic and operative recommendations represent the standard methods of today. Many of the illustrations have been selected from American and European sources. The original illustrations for this edition have also been well chosen. The chapter on neurogenic dysfunction of the bladder will be well received. Urology in the female is adequately presented in a single chapter. Consideration of the etiologic factors of dilatation of the ureters and renal pelves in pregnancy is taken up under three possible headings: (*a*) mechanical, (*b*) muscular atony resulting "from the action of either hormones or of toxins on ureteral and renal pelvic musculature with resultant atony," and (*c*) mixed origin, viz. the resultant of the chief factor of atony and of compression by the uterus as a secondary cause. While this subject is still a question and various points of view have been expressed in both clinical and experimental contributions

to the subject, recent experimental work would seem to have demonstrated that the dilatation of the upper part of the urinary tract during pregnancy is primarily due to hormonal influence. An occasional typographic error appears, as in the last sentence on page 517. As a whole this book can be heartily recommended and it ranks high in the category of available textbooks for teaching in medical schools. Its broad scope and excellent index will make it a valuable reference work for the specialist in urology. Many references to the earlier editions appear in recent periodical literature of urology in the English language.

Minor Maladies and Their Treatment. By Leonard Williams, M.D. Seventh edition. Cloth. Price, $3.75. Pp. 439. Baltimore: William Wood & Company, 1937.

This edition of a work first published in 1906 has been revised and keeps pace with the discoveries and change in practices in the treatment of minor maladies, including coughs, colds, sore throats, indigestion, constipation, diarrhea, neuralgia, headaches and minor glandular disturbances, and concludes with chapters on general health and treatment in advanced years. While the therapeutic methods suggested at times do not conform with the generally accepted beliefs, the methods employed are satisfactory and will usually be found beneficial. Each subject is considered with sufficient thoroughness to aid in assuring adequate therapy. The book will continue to find its field of usefulness.

The Etiology of Trachoma. By Louis A. Julianelle, Chairman of the Trachoma Commission, Washington University, St. Louis. Cloth. Price, $3.25. Pp. 248, with 13 illustrations, including 10 plates. New York: Commonwealth Fund; London: Oxford University Press, 1938.

Among other things, this book contains a summary of the studies in trachoma that have been in progress in the Oscar Johnson Institute of Washington University for the past eight years. Almost all of the material has appeared at various times in the journals of ophthalmology and as such is familiar to students of the subject. In the eleven chapters of the book the epidemiology, causation and infectivity of trachoma are discussed at some length, after which the text swings into technical descriptions of the bacterial flora of the disease, inclusion bodies and the virus aspect. The conclusion is that "the infectious agent of trachoma is a virus of remarkable frailty, succumbing before physical and chemical agents tolerated by numerous other bacterial and viral agents." A thorough bibliography and index are appended. The book work is good and the illustrations are excellent. The monograph represents a large amount of work, especially of a bibliographic nature, and as such is of great value from a reference standpoint.

Jan Ev. Purkyně 1787-1937; Sborník statí k 150. vyroči narozenin českého učence. [Jan Ev. Purkyně 1787-1937: Collection of Articles in Honor of 150th Anniversary of Birth of Czech Scientist.] Paper. Pp. 325, with illustrations. Prague: Purkyně Society for Study of Life and Works of J. E. Purkyně, 1937.

This book consists of twenty-seven essays on the life and work of Johannes Evangelista Purkinje. Among the contributors are the foremost Czech scientists. The volume is divided into two parts: In the first are discussed Purkinje's contributions to science; in the second, some phases of his private life, his character, his philosophy, his love of literature and his efforts to awaken the national spirit of the Slavs in general and of the Czechs in particular. The last seventeen pages contain a list of Purkinje's publications and a program of the international celebration in Prague in September 1937 to commemorate the one hundred and fiftieth anniversary of his birth. It is claimed that Purkinje is the founder of microscopic anatomy and experimental physiology in Germany. His noteworthy contributions to the biologic and medical sciences make him one of the founders of modern medicine. Among his contributions to biology was his description of the cell, which he considered the fundamental unit of the living organism. He was the first to use the term "protoplasma" to designate the living substance of a cell, and the second after Dujardin to call attention to the existence of this substance. He is credited as being the first anatomist to describe the nerve cells in the brain, spinal cord and ganglions as well as the first to demonstrate glandular tissue in the stomach. He made many original studies on the eye, heart, sex organs, skin, blood vessels, connective tissue, cartilage and bone. With the acquisition of the Plössl microscope later in his life he was able to amplify these studies. The account of his pharmacologic experiments makes interesting reading. Many of these studies he carried out on his own person. He investigated the action of camphor, digitalis, belladonna, opium, ipecac, turpentine and other substances. He systematized dactyloscopy, classifying finger prints into nine groups. A modification of this classification is being used now in criminology. About the importance of physiology in medicine he wrote:

> A modern physician cannot be trained for research or physiology by attending the clinics or by the study of the old masters. His training, beginning with the observation on the sick, must continue in the laboratory, where science is taught and where progress in contemporary medicine is made. It is clear then that physiology, in whose domain rests this experimental laboratory investigation, is the climax of the education of a modern physician, the crown of his medical understanding and the embryo of further progress. For a physician must not be deceived about understanding disease when he can designate it by name or place it into a certain system; he must take to mind that only then does he understand disease when he masters it scientifically, prognostically as well as therapeutically. The attainment of this progress is possible only through physiologic investigation. It is evident, therefore, that physiology is the fundamental medical science.

Purkinje's extreme modesty prevented him from publishing many interesting and valuable observations. The Purkinje Society of Czechoslovakia is engaged in bringing to light such material as has not been presented thus far, as well as in solving some of the controversies regarding priorities. This stimulating book is highly recommended to research workers and physicians. It is unfortunately not available in English translation.

Physiologie des Nebennierenmarkes. Von Gustav Bayer und Doz. Dr. Dr. Theodor Frhr. v. d. Wense. Band VI, Zwanglose Abhandlungen aus dem Gebiete der Inneren Sekretion. Herausgegeben von Professor Dr. W. Berblinger. Paper. Price, 11.70 marks. Pp. 87. Leipzig: Johann Ambrosius Barth, 1938.

More than one fourth of this comprehensive but not analytic and critical review of the literature on the adrenal medulla, epinephrine and "sympathin" during the last twenty-five years is taken up by the bibliography. The brief citations of the numerous inconclusive, if not contradictory, results of research, without much attempt at appraisal, especially in the section dealing with the possible relation of the adrenal medulla to the other endocrines, leaves most doctors not much wiser.

Modern Anæsthetic Practice. Edited by Sir Humphry Rolleston, Bt., G.C.V.O., M.D., and Alan A. Moncrieff, M.D., F.R.C.P. Published on behalf of The Practitioner. Cloth. Price, 10s. 6d. Pp. 231, with 6 illustrations. London: Eyre & Spottiswoode (Publishers) Ltd., 1938.

This volume is prepared especially for the general practitioner of medicine in England. The introduction by Blomfield and the first chapter, by Hewer, on theoretical aspects of anesthesia and analgesia, are the best portions of the book and are appropriate for any textbook on anesthesia. Chapter 2, by Featherstone, on the use of volatile anesthetic agents, is conservative and to the point although nothing new is presented. Chapter 3, by Macintosh and Pratt, on nitrous oxide anesthesia in surgery, does not seem to belong in a book bearing the title of Modern Anaesthetic Practice, except for the discussion of the use of nitrous oxide in minor surgery and the value of preliminary medication in connection with its use. Chapter 4, by Ashworth, on basal anesthesia, presents briefly the common practice in England with basal anesthetic agents. Chapter 5, on endotracheal anesthesia, summarizes briefly and well the endotracheal method of anesthesia. In chapter 6, on spinal anesthesia, the present trend in spinal anesthesia is presented conservatively without going into much detail. Chapter 7, on anesthesia and analgesia in midwifery, is excellent and represents a conservative view on the relief of pain in childbirth. Chapter 8, by Evans, on anesthesia and the child, is commendable and deserves to be read by anesthetists in general. In chapter 9, by Vaile, on anesthesia in dentistry, is presented the English attitude in anesthetizing the dental patient but nothing new is presented. Chapter 10, by Romanis, on local anesthesia and analgesia, is conservative but excellent as far as it goes; few types of block anesthesia are discussed, however; the main thing stressed is the value of infiltration with procaine and epinephrine, which is not debatable. Chap-

ter 11, by Magill, on the anesthetic aspects of postoperative care, is one of the most valuable chapters in the book and could be read to advantage by all anesthetists and surgeons. Chapter 12, on risks of explosion in anesthesia, is an excellent summary of present day opinion on the subject. This is a book that most anesthetists of this country will want to read at least, if not own. Its value for general practitioners in the United States is not apparent.

Dunant: The Story of the Red Cross. By Martin Gumpert. Cloth. Price, $2.50. Pp. 323, with portrait. New York: Oxford University Press, 1938.

This book is the pathetic, not to say tragic, story of the Nobel peace prize winner Henri Dunant, who was the first to entertain the conception of an international society for the alleviation of the sufferings of wounded in battle and of prisoners. Dunant was an ordinary citizen of Geneva, somewhat better off than the average, if not actually wealthy, who was engaged in the banking business. He came into contact with war somewhat accidentally at the battle of Solferino, where the French and the Austrians met in 1859. Here he was plunged into the midst of the fighting and saw the miserable lack of accommodations for the wounded and the total absence of doctors, nurses and medical supplies. He plunged into the emergency and made heroic efforts to supply as much as possible of the need through his own labor. Needless to say his success was scarcely worth mentioning, but the impression of horror was etched so deep on his mind that it dominated the rest of his life. After Solferino he could never get rid of the idea and he traveled all over Europe meeting statesmen, kings, emperors, politicians, society leaders and literati. He became a salesman for an obsession. Quiet and retiring in nature, he was relentless in a gentle sort of way and had an exceedingly persuasive way with persons whom he could meet individually. He was in no sense a rabble rouser; neither was he an organizer. In fact, though the Red Cross idea was his, the development of the idea was made possible largely through the organizing ability of one of his associates, Moynier. Toward the end of his life Dunant was disappointed by the hypocrisy and lip service of many who professed adherence to his idea and this, coupled with bankruptcy from squandering his resources on the promotion of his ideas, caused him to retire into oblivion, from which he did not emerge until he was accidentally discovered living in obscurity in Switzerland. He then received the Nobel peace prize, which he dedicated in its entirety to furtherance of Red Cross work, for by this time the International Red Cross had been established and was to a large extent functioning. The book is written with what is obviously an intense affection for Dunant. His tragic life story is depicted with sympathetic understanding and an appreciation of the mental and spiritual struggle which motivated the founder of the Red Cross. The author also develops and strongly emphasizes the idea that the Red Cross in its present form and functioning is a negation and a betrayal of the ideals and purposes of the founder, who is represented as coming in his later years to a feeling that his first proposal for aid on the battlefield was a totally inadequate approach and that the real function and purpose of the Red Cross should be to agitate for universal peace. Whether one takes the view of the author or not, the fact remains that the Red Cross as we know it is a living monument to the tragic life of Henri Dunant.

Classic Descriptions of Disease With Biographical Sketches of the Authors. By Ralph H. Major, M.D., Professor of Medicine, University of Kansas School of Medicine, Kansas City. Second edition. Cloth. Price, $5.50. Pp. 727, with 137 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

Distinctive in this edition are sections covering malaria and yellow fever as well as many new illustrations. The author points out that many of the biographic sketches have been rewritten, and the index has been revised and enlarged. For the student and the teacher of medical history as well as for the dilettante in this field Major's contribution is invaluable. Even for those who have been little concerned in the past with medical history the book will be attractive and will serve in many instances to initiate them to a lifelong interest in this field.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Foot Drop Following Operation on the Knee; Res Ipsa Loquitur.—The plaintiff sued the defendant physicians to recover damages for injuries allegedly due to their negligence in performing an operation on his left knee. The trial court directed a verdict for defendant Carlson and entered an order of non-suit in favor of the defendant Ream. The plaintiff then appealed to the district court of appeal, first district, division 2, California.

The plaintiff suffered a strain of the crucial ligaments and external lateral ligaments of his left knee and was treated by defendant Carlson. As a result of the treatment, the plaintiff was able to walk and had full use of his left leg and foot but some instability remained in his left knee which made it impossible for him to perform the work he had formerly been employed to do. To correct this condition, defendant Carlson, assisted by defendant Ream, operated on the knee. Immediately thereafter the plaintiff suffered from foot drop and his leg was placed in a cast, but the treatment resulted in no improvement. About five months later a third physician performed an operation on the knee and found that the external peroneal nerve had been severed at a point approximately where its course intersected the course of the incision made by defendant Carlson. The ends of the nerve were freshened and sutured together, but there was practically no improvement in the plaintiff's condition.

It was conceded that the nerve was severed during the course of the operation performed by the defendants. On appeal, the plaintiff contended that the defendants failed to examine the nerve before closing the wound to ascertain whether it had been injured and that this omission constituted negligence. This contention, the court said, was without merit. The medical testimony disclosed that the nerve was not laid bare but was retracted with the tissue surrounding it. To examine it, the surrounding tissue would have had to be laid open along the length of the nerve, an act which might itself have resulted in severe injury to the nerve. The evidence further disclosed that the standard practice of surgeons of good repute in the locality was to ascertain after the completion of the operation and after the patient had regained consciousness whether the nerve had been injured by means of testing certain reflexes in the lower leg and foot. This was done in the present case, the court pointed out.

The plaintiff next contended that the doctrine of res ipsa loquitur applied and therefore an inference of negligence might arise sufficient to support a verdict in his favor. The determining factor, the court said, as to whether the doctrine applies in operative cases of the kind under consideration is whether the act causing the injury is one which can be visualized by the layman or whether it is one which depends entirely on scientific or medical knowledge. The plaintiff was completely anesthetized when the operation was performed on his knee and it was impossible for him to know what occurred. The defendants were in complete charge of the operation during the course of which the external peroneal nerve was severed. The nerve was not being treated and it was not in any way diseased. While the nerve lay in the operative field, it was involved only to the extent that it had to be retracted to one side in order that the operator might go beneath it. Scientific or expert opinion was not required, in the opinion of the court, because no question was raised with respect to negligence either in the diagnosis or treatment of a human ailment. The testimony of experts was necessary to establish the facts concerning the location and function of the external peroneal nerve, the location of the crucial and external lateral ligaments of the left knee, the location of the operative fields, and the extent to which the external peroneal nerve was involved in the operation which the defendants undertook to perform. But, once these facts were established, the inference of negligence was one which may be drawn by the application of the common knowledge of laymen.

The doctrine of res ipsa loquitur, where applicable, gives rise to an inference of negligence. If that inference is met by the

introduction of evidence which rebuts it, then the inference is overcome and a non-suit or directed verdict is proper. The evidence introduced by the defendant Carlson, the court pointed out, made no attempt to explain how the nerve was severed. Three expert witnesses for the defendants testified that the methods followed by the defendants in the course of the operation constituted good standard practice, as followed by surgeons of good repute in the same locality. But no one testified that the actual operation as performed was done with due care in all its details. These witnesses testified also that even though the operation on the knee were performed with due care, the external peroneal nerve would be severed in from 5 to 9 per cent of the cases and that the presence of scar tissue caused by the injury to the ligaments would increase the likelihood that the nerve would be severed. None of this evidence, the court said, rebutted the inference of negligence with respect to defendant Carlson in a clear and positive manner and the trial court should not have directed a verdict in his favor.

As to defendant Ream, the record presented a different case, in the opinion of the court. The plaintiff contended and the defendants conceded that the nerve was severed during the course of the operation. The evidence was clear, positive and uncontradicted that defendant Ream had not cut around the peroneal nerve. He handled the retractors after they were placed by defendant Carlson, who testified that defendant Ream handled no instruments that would actually have severed the nerve. In the light of this evidence, the inference of negligence which might arise from the application of the doctrine of res ipsa loquitur was completely rebutted and dispelled as to defendant Ream by clear, positive and uncontradicted evidence. It followed, the court said, that, as the inference of negligence as to this defendant was dispelled from the case as a matter of law, the order granting a non-suit was proper.

The appellate court, therefore, affirmed the order granting a non-suit in favor of defendant Ream but reversed the judgment entered on the directed verdict in favor of defendant Carlson.—*Engelking v. Carlson (Calif.), 80 P. (2d) 96.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

Alabama, Medical Association of the State of, Montgomery, April 18-20. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Academy of Tuberculosis Physicians, St. Louis, May 13-14. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22-24. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Traumatic Surgery, Hot Springs, Va., May 8-9. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.

American Association of Genito-Urinary Surgeons, Williamsburg, Va., May 24-26. Dr. Charles C. Higgins, 2050 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8. Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., April 30-May 1. Dr. Henry E. Sigerist, 1900 Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Chicago, May 3-6. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Montebello, Canada, May 31-June 3. Dr. Fred D. Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 1-2. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 22-24. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, St. Louis, May 12-13. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Rye, N. Y., May 24-26. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, May 10-11. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medico-Legal Association, Chicago, May 12-13. Dr. Michel Pijoan, 124 Commonwealth Ave., Boston, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otological Society, New York, May 22-23. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Pediatric Society, Sky Top, Pa., Apr. 27-29. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Physiological Society, Toronto, Canada, Apr. 26-29. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Psychiatric Association, Chicago, May 8-12. Dr. Arthur H. Ruggles, Butler Hospital, Providence, R. I., Secretary.

American Radium Society, St. Louis, May 15-16. Dr. Frederick W. O'Brien, 465 Beacon St., Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 1. Dr. Isaac Starr, University of Pennsylvania Hospital, Philadelphia, Secretary.

American Society for Experimental Pathology, Toronto, Canada, April 26-29. Dr. Paul R. Cannon, Dept. of Pathology, University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Toronto, Canada, Apr. 26-29. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.

American Society for the Study of Allergy, St. Louis, May 15-16. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

American Society of Anesthetists, New York, Apr. 14. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.

American Society of Biological Chemists, Toronto, Canada, Apr. 26-29. Dr. C. G. King, Univ. of Pittsburgh, Dept. of Chemistry, Pittsburgh, Secretary.

American Society of Clinical Pathologists, St. Louis, May 12-14. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Surgical Association, Hot Springs, Va., May 11-13. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, St. Louis, May 12-13. Dr. Joseph F. Elward, 1726 Eye St. N.W., Washington, D. C., Secretary.

American Urological Association, White Sulphur Springs, W. Va., May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arizona State Medical Association, Phoenix, Apr. 13-15. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, May 8-10. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Associated Anesthetists of the United States and Canada, St. Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St. Louis, May 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 2-3. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

Association of Military Surgeons of the United States, Washington, D. C., May 8-10. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

California Medical Association, Del Monte, May 1-4. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, New Haven, May 25-26. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, April 25-27. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Executive Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Apr. 26-29. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.

Florida Medical Association, Daytona Beach, May 1-3. Dr. Shaler Richardson, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, Apr. 25-28. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Rockford, May 2-4. Dr. H. M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 25-27. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Topeka, May 1-4. Mr. C. G. Munns, 112 W. 6th St., Topeka, Executive Secretary.

Louisiana State Medical Society, Alexandria, Apr. 24-26. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 25-26. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Worcester, June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2. Dr. B. B. Souster, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Gulfport, May 9-11. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

Missouri State Medical Association, Excelsior Springs, Apr. 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

National Gastroenterological Association, New York, June 1-2. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

Nebraska State Medical Association, Grand Island, May 2-4. Dr. R. B. Adams, 414 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Gallup, May 11-13. Dr. L. B. Cohenour, 219 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, April 24-27. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

New York State Association of Public Health Laboratories, Valhalla, May 8. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9-14. Dr. T. W. M. Long, Roanoke Rapids, Secretary.

North Dakota State Medical Association, Fargo, May 8-10. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Toledo, May 3-4. Mr. C. S. Nelson, 79 E. State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 1-3. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.

Rhode Island Medical Society, Providence, June 7-8. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., Apr. 29. Dr. W. C. Spain, 116 E. 53d St., New York, Secretary.

South Carolina Medical Association, Spartanburg, April 11-13. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Aberdeen, Apr. 24-26. Dr. Clarence E. Sherwood, Madison, Secretary.

Tennessee State Medical Association, Jackson, Apr. 11-13. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Texas, State Medical Association of, San Antonio, May 8-11. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

22: 1-118 (Jan.) 1939

Facial Hemiatrophy: Report of Two Cases. F. B. Walsh, Baltimore.—p. 1.
Staphylococcus Toxin: Experimental Study in Rabbits. J. H. Allen and A. E. Braley, Iowa City.—p. 11.
Influence of the Central Nervous System on the Pigment Migration in the Retina of the Frog. H. M. Burian, Hanover, N. H.—p. 16.
A Contact Lens-Telescopic System. J. W. Bettman and G. S. McNair, San Francisco.—p. 27.
*Vitamin Therapy in Ophthalmic Practice. J. Laval, New York.—p. 33.
Lectures on Motor Anomalies: V. Development and Course of Strabismus. A. Bielschowsky, Hanover, N. H.—p. 38.
Parallel Study of the Pathogenesis of Rhinogenous Optic Neuritis and of Serous Iritis. B. Waldmann, Oradea, Rumania.—p. 44.
Intra-Ocular Tension in Electropyrexia: Preliminary Report. H. C. Ernsting, Cleveland.—p. 54.
Causes of Blindness in Indiana. D. H. Row and C. D. Chadwick, Indianapolis.—p. 57.

Vitamin Therapy in Ophthalmic Practice.—Laval suggests that in certain ophthalmologic conditions in which deficiencies of vitamins exist it might be theoretically valuable to prescribe the following treatment: 1. A tablespoonful of cod liver oil twice daily should be prescribed in cases of poor dark adaptation, phlyctenular keratoconjunctivitis, photophobia and low grade conjunctivitis in women who are on a slenderizing diet or in cases of other corneal and conjunctival lesions in which the history shows a deficiency of vitamin A. 2. In cases of incipient cataract, optic neuritis, retrobulbar neuritis and also toxic amblyopia vitamin B (B_1 and B_2) may be prescribed. This could be taken daily in the form of eight tablets of brewers' yeast or in the powdered form. 3. The juice of at least two large oranges or one grapefruit daily can be ordered in cases of incipient cataract. (This is plus the brewers' yeast, which is also to be taken daily.) In cases of intraocular hemorrhage the juice of four lemons daily is suggested.

American Journal of Orthopsychiatry, Menasha, Wis.

9: 1-272 (Jan.) 1939. Partial Index

Enuresis: Study in Etiology. Margaret W. Gerard, Chicago.—p. 48.
*Incidence of Enuresis and Age of Cessation in 1,000 Neuropsychiatric Patients: Discussion of Relationship Between Enuresis and Delinquency. J. J. Michaels, Boston, and Sylvia E. Goodman, Ann Arbor, Mich.—p. 59.
Proposed Classification of Psychiatric Problems. G. S. Sprague, White Plains, N. Y.—p. 72.
Psychiatric Nomenclature. E. Harms, Washington, D. C.—p. 81.
Overestimation of Psychopathology. G. Zilboorg, New York.—p. 86.
Some Parallels Between Dynamic Psychiatry and Cultural Anthropology. Helen Leland Witmer.—p. 95.
The Economic Factor in Disorders of Behavior. T. Burrow, New York.—p. 102.
Psychiatry in a Boys' Club. A. R. Martin, New York.—p. 123.
Psychoses and the Prepsychotic Personality. T. V. Moore, Washington, D. C.—p. 136.
Inter-Agency Use of Child Guidance Clinics: From the Point of View of the Cooperative Effort of Social Workers. Rose Green, Philadelphia.—p. 170.
Tutoring as Therapy. Grace Arthur, St. Paul.—p. 179.
The Drama as a Therapeutic Measure in Adolescents. F. J. Curran, New York.—p. 215.

Enuresis in Neuropsychiatric Patients.—According to Michaels and Goodman, there was an incidence of 19.3 per cent of enuresis in 1,000 neuropsychiatric patients distributed in fourteen diagnostic groups. The incidence was significantly higher in the groups of psychopathic personality (32.2 per cent), psychiatric behavior problems (43.8 per cent) and mental deficiency (33.3 per cent). There were consistently more males among the enuretic, this being especially prominent among the psychopathic personalities and the psychiatric behavior problems. Patients with manic depressive psychosis presented the lowest incidence of enuresis (12.4 per cent) as well as the smallest percentage of males among those who had enuresis. Persistence of enuresis was encountered in 35.7 per cent of the group with behavior problems. The triad association of male, psychopathic personality and enuresis seems worthy of serious consideration. Enuresis in its stubborn persistence reflects psychosomatically the lack of an internal inhibitory agent just as delinquency later reflects this lack sociopsychologically. Persistent enuresis is the prototype of the expression of deficient inhibitory tendencies, a weak ego and a reflection of an ill balance of the types belonging to the psychopathic personality, the delinquent and the psychiatric behavior problem. Its roots are embedded in the instinctual layer of the personality. It indicates faulty integration in the component levels of the personality and a lack of maturation. If enuresis is such a prophetic indicator of psychobiologic reactivity, the need for more intensive study of enuresis in the individual person is self apparent.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

23: 1-142 (Jan.) 1939

*Treatment of Tabetic Lightning Pains with Thiamin Chloride: Preliminary Report. P. F. Metildi, Rochester, N. Y.—p. 1.
Studies in the Bismuth Therapy of Syphilis: I. Comparative Study of Toxicity and Therapeutic Activity of Bismuth Compounds Commonly Employed in Treatment of Syphilis. J. A. Kolmer, H. Brown and Anna M. Rule, Philadelphia.—p. 7.
Clinical and Experimental Evaluation of Sulfanilamide in Gonorrhea. A. Cohn, A. Jacoby, B. A. Kornblith and M. Wishengrad, New York.—p. 41.
Gonorrhea and Sulfanilamide: Effort Toward Clinical Orientation. P. S. Pelouze, Philadelphia.—p. 48.
*Reinfection (?) in Neurosyphilis. I. Kopp and H. C. Solomon, Boston.—p. 54.
Hemorrhagic Encephalitis in Pregnancy Following Antisyphilitic Therapy with Neoarsphenamine. S. S. Paley and N. Pleshette, New York.—p. 69.
Study of Sensitivity and Specificity of the Laughlen Test as Compared with the Wassermann and Kahn Tests. H. W. Craig and J. L. Callaway, Durham, N. C.—p. 76.
Mapharsen as a Substitute for Neoarsphenamine in Agranulocytic Angina Following Neoarsphenamine Therapy in a Pregnant Syphilitic Woman. M. Goldberg, Brooklyn.—p. 79.
Alterations in Serum Proteins in Lymphopathia Venerea. Marion E. Howard, Anna J. Eisenman and M. J. Strauss, New Haven, Conn.—p. 83.
Massive Gangrene of the Skin in a Syphilitic Patient. H. Goodman, L. Oulmann, New York, and M. W. Buchbinder, Jamaica, Long Island, N. Y.—p. 97.

Thiamin Chloride for Tabetic Pains.—Metildi used thiamin chloride in the treatment of lightning pains of six tabetic patients in whom the tabes dorsalis process was not actively progressive. In each of these cases antisyphilitic treatment by standard methods had been ineffectual in relieving lightning pains. Thiamin chloride was given intramuscularly or intravenously. The patients were relieved of these pains either completely or in part in a few days after the injection of 10 mg. of thiamin chloride. The injections are being continued at weekly intervals. The period of observation is as yet too short to permit evaluation of the results.

Reinfection in Neurosyphilis.—Kopp and Solomon present a case of probable reinfection with syphilis in a patient who had neurosyphilis. The patient was continuously under observation in one clinic for eleven years. Numerous negative blood and spinal fluid examinations were obtained during this period. It is possible that reinfection occurred in this patient, who had developed early asymptomatic neurosyphilis while under active treatment for his first infection. Multiple chancres developed during the second infection.

Annals of Medical History, New York

1: 1-104 (Jan.) 1939

The Faculty of Medicine of Paris: Historical Study of Its Origin and Its Influence Through Six Centuries to the Outbreak of the French Revolution. H. W. Jones, Washington, D. C.—p. 1.
The Origin of the Microscope. R. L. Haden, Cleveland.—p. 30.
Robert Adams, Surgeon, and His Contributions to Cardiology. J. B. Herrick, Chicago.—p. 45.
Brief History of Physical Diagnosis. H. M. Korns, Iowa City.—p. 50.
Circumcision. M. S. Jacobs, Philadelphia.—p. 68.
Ignatz Philipp Semmelweis: Outline for a Biography. I. I. Edgar, Detroit.—p. 74.

Canadian Medical Association Journal, Montreal

40: 1-104 (Jan.) 1939

*Major Forms of Hereditary Ectodermal Dysplasia (with an Autopsy and Biopsies on the Anhydrotic Type). H. R. Clouston, Huntingdon, Que.—p. 1.
Early Diagnosis of Cancer of the Stomach. L. J. Notkin, Montreal.—p. 8.
Cystic Disease of the Urinary Tract Epithelium: Report of Case. N. W. Roome, London, Ont.—p. 13.
*Intranasal Administration of Estrogenic Hormones in Constitutional Deafness. H. Mortimer, R. P. Wright, D. L. Thomson and J. B. Collip, Montreal.—p. 17.
Improvements in Audiometry at the Montreal General Hospital. E. G. Burr and H. Mortimer, Montreal.—p. 22.
Biochemical Study of Patients on Sulfanilamide Therapy. C. C. Lucas and D. R. Mitchell, Toronto.—p. 27.
Pelvic Endometriosis: Report of Forty Cases. D. N. Henderson, Toronto.—p. 34.
Diagnosis and Treatment of the Common Disorders of Menstruation. E. Shute, London, Ont.—p. 38.
Etiologic Factors and Treatment of Carcinoma of Cervix. P. J. Kearns, Montreal.—p. 43.
The Management of Diabetes Mellitus by the General Practitioner. A. MacKay, Toronto.—p. 48.
Fors Clavigera in Anesthesia. W. Bourne, Montreal.—p. 52.
Results of Phrenic Nerve Paralysis in Treatment of Pulmonary Tuberculosis. A. F. Miller and V. D. Schaffner, Kentville, N. S.—p. 55.
Blood Culture as an Aid to Diagnosis of Carcinoma and Sarcoma. O. C. Gruner, Montreal.—p. 63.
The Blood Sedimentation Rate in Anemia. H. Sugarman, Saskatoon, Sask.—p. 65.
Aberrant Renal Vessels: Report of Two Cases. G. A. Winfield, Halifax, N. S.—p. 66.

Hereditary Ectodermal Dysplasia.—Clouston has made some additional observations on the hydrotic types of hereditary ectodermal dysplasia. He presents a chart showing that its severity is decreasing. The first four cases of the anhydrotic type of ectodermal dysplasia to be reported in Canada are cited with biopsy records and the third postmortem study is given. The condition is much more common than is usually believed. The distinctive marks are diminished sweating, dental aplasia and a rhinitis which has usually been called "atrophic." This is shown to be hypoplastic; the mucous glands of the nose and throat are diminished in number or absent. The resultant lack of defense and aeration, combined with loss of emergency temperature control, is probably a heretofore unrecognized cause of death in infancy. Recognition is not made because death occurs before the children are old enough to complain of the heat and before the distinctive dentition has occurred. Breast tissue was shown to be absent by the microscope. The question is raised as to what extent ozena is a hereditary ectodermal defect. It did respond to estrogenic substances. Evidence is given that the endocrine glands of ectodermal origin are involved in the general ectodermal dysplasia.

Estrogen Intranasally in Constitutional Deafness.—Mortimer and his colleagues report the results of the insufflation of estrogen intranasally in a series of fifty-five cases of constitutional deafness. Of the patients treated between July 1936 and September 1938 there are thirty-nine females and sixteen males. The cases were mostly diagnosed as either "otosclerosis" or "nerve deafness"; no attempt was made to select any given type of case. The patients range in age from the second to the sixth decade of life. Treatment consisted of daily nasal insufflation of 1 cc. of oil containing 1,000 international units of estrogen. None of the patients were treated for less than three months. Many of them have been under treatment for six months and there are some who have been treated intermittently for two years. As controls, eight males and six females have been observed. Before and during the treatment, at intervals of from one to two months, the hearing acuity in each ear of each patient was measured. Statistical examination shows that when all the data for 512, 1,024, 2,048 and 4,096 cycles are considered, the hearing of the treated males improves slightly while that of the untreated males deteriorates slightly. At these same frequencies the hearing of the treated females also improves slightly and of the untreated ones it appears to deteriorate. The high incidence of cranial dysplasia in 153 cases of constitutional deafness is discussed. The authors draw attention to the distribution of cranial types in this group and its similarity to the type of distribution in atrophic rhinitis and ozena. They suggest that these two constitutional diseases may have a similar or even share a common constitutional background. This view, they believe, finds additional support in that the two constitutional defects coexist in the same individual and in the same familial stock more often than it is generally recognized (in such stock the two defects may be distributed through one generation or in successive generations) and in that treatment which acts specifically on the nasal disease is capable of producing not only marked improvement in certain individual cases of the aural defect but also a statistically significant amelioration in the hearing level of the constitutionally deaf. The authors do not imply that constitutional deafness is an endocrine disease.

Delaware State Medical Journal, Wilmington

11: 1-16 (Jan.) 1939

Surgical Problems of Hyperthyroidism. I. S. Ravdin, Philadelphia.—p. 1.
Injection Treatment for the Cure of Hernia. B. R. Veasey, Wilmington.—p. 7.
Acute Retention of Urine in Single Kidneys. B. S. Vallett, Wilmington.—p. 8.

Journal of Pediatrics, St. Louis

14: 1-136 (Jan.) 1939

Tetany in Newborn Infants: Relation to Physiologic Hypoparathyroidsm. H. Bakwin, New York.—p. 1.
Empyema in Children. S. Hurwitz and H. B. Stephens, San Francisco.—p. 11.
*Mental Retardation Associated with Congenital Heart Disease: Study of Twenty-Two Cases. Mabel Ross, Baltimore.—p. 21.
*Controlled Study of Pertussis Prophylaxis: Comparison of Phase I, Haemophilus Pertussis Vaccine with Undenatured Bacterial Antigen. Charlotte H. Singer-Brooks, San Francisco.—p. 25.
Neurologic Complications of Whooping Cough: Review of the Literature with Reports of Two Cases of Pertussis Encephalitis. R. L. Nelson, Wichita Falls, Texas.—p. 39.
Weil's Disease: Report of Case Occurring in a Child. E. E. Martmer, Detroit.—p. 48.
Niemann-Pick's Disease: Report of Three Cases in One Family. D. Merksamer and B. Kramer, Brooklyn.—p. 51.
Roentgenologic Demonstration of Esophageal Varices as a Diagnostic Aid in Chronic Thrombosis of the Splenic Vein. H. M. Greenwald and M. G. Wasch, Brooklyn.—p. 57.
*Anemia of Rheumatic Fever. J. P. Hubbard, Boston, and Margaret Harper McKee, Irvington, N. Y.—p. 66.
Acrodynia Treated with Intramuscular Injections of Vitamin B_1. J. I. Durand, V. W. Spickard and E. Burgess, Seattle.—p. 74.
Idiopathic Dilatation of the Common Bile Duct in Childhood. H. K. Berkley, Los Angeles.—p. 79.
Serum Treatment of Meningococcic Meningitis. C. J. Leslie and A. G. De Sanctis, New York.—p. 83.
Congenital Omphalocele: Report of Four Cases. J. L. Stein and A. Gerber, Brooklyn.—p. 89.

Mental Retardation with Congenital Heart Disease.—Ross points out that in the Harriet Lane Home those working in the cardiac clinic observed that many of the children with congenital cardiac lesions were often placed in special classes because of difficulty in school work. This observation led to a study of the incidence of mental retardation in patients with congenital heart disease. The cases studied were limited according to age (not more than 14 years) by the admitting rules of the Harriet Lane Home Dispensary and, in order to have a reasonable expectation of accurate results by the Binet-Simon intelligence tests, no child less than 5 years of age was included. Eleven boys and eleven girls ranging from 5 to 14 years of age were observed. Fifteen of these had been followed in the cardiac clinic, but the diagnosis was well checked in all. In these cases, patent interventricular septum (eight) and patent ductus arteriosus (six) were most common. The diagnosis was patent interauricular septum in four, pulmonary stenosis in two and valvular disease in one, and the pathologic condition was undetermined in one. None of the subjects fell in the idiot class but two had intelligence quotients below 50, seven fell in the moron group and eight were in the dull normal group. Only four were within the normal range of 91 to 110, and the highest of the group had an intelligence quotient of 117. There was no relation to the type of lesion, as the diagnosis in the two lowest and the one highest in the whole group was patent interventricular septum. This group was compared with a cross section of the Harriet Lane Psychiatric Dispensary patients, 1,000 cases. This group was felt to be fairly representative of the general outpatient population. The dull normal range was the same in all categories, but among those with congenital cardiac lesions the

moron group was much larger and the normal group much smaller than in the outpatient population. The study appears to show that the intellectual endowment, as measured by the Binet-Simon intelligence tests, tends to be somewhat lower in the group suffering from congenital heart disease.

Pertussis Prophylaxis.—Singer-Brooks presents the results of pertussis prophylaxis obtained over a period of three years during which ninety-five children were injected with undenatured bacterial antigen, 272 children with phase I Haemophilus pertussis vaccine and 256 children were not protected and served as controls for treated groups. Of the ninety-five children injected with undenatured bacterial antigen thirty-four were exposed and in twenty-eight of these pertussis developed, making the attack rate 29.4 per cent. Of the children injected with phase I Haemophilus pertussis vaccine, forty-two were exposed to pertussis. Haemophilus pertussis infections developed in seven of these. The attack rate in this group was 2.5 per cent. Seventy-one of the control children were exposed to pertussis and in sixty-two of these attacks developed. The attack rate in the 256 control children was 24.2 per cent. The treated children have not been observed over a sufficiently long period to determine conclusively the duration of the protection conferred.

Anemia of Rheumatic Fever.—Hubbard and McKee observed the changes in the blood of seventeen patients with nineteen characteristic recrudescences of rheumatic fever. All had well established rheumatic fever with cardiac complications. Their ages ranged from 5 to 16 years. None received any drugs which could be considered to have any bearing on the production of anemia. The patients were treated with the usual supportive measures including salicylates, diuretics and digitalis. Six of the exacerbations progressed to a fatal termination. All other patients were followed during their convalescence until the activity subsided. It was found that in association with the active phases of rheumatic disease a secondary anemia develops which is often quite severe. As the infection subsides, the blood levels tend to return to normal. Therefore the presence of anemia may often be an indication of continued rheumatic fever activity.

Military Surgeon, Washington, D. C.

84: 1-96 (Jan.) 1939

The Navy Today. W. D. Leahy.—p. 1.
The Medical Department of the Navy 1933-1938 and Its Plans for the Future. P. S. Rossiter.—p. 5.
Dental Aspects of Preventive Medicine. L. C. Fairbank.—p. 11.
Therapeutic Value of Castor Oil and Magnesium Sulfate in Treatment of Acute Upper Respiratory Disease. W. A. Smith and G. F. Baier.—p. 16.
Transmission of Tularemia by the Fin Prick of a Catfish. D. H. Miller.—p. 23.
Practical and Brief Program for the Teaching of Chemical Warfare to a Medical Reserve Officers' Troop School. H. G. Roller and L. Goldman.—p. 29.
Principles of Control of Fungus Disease of Feet in the Military Organization. L. Goldman.—p. 35.
*Incidence of Syphilis in 5,000 Recruits and Casual Soldiers. R. E. Blount.—p. 40.
Ruptured Appendix. F. J. Vokoun.—p. 45.
Efficacy of Cold Vaccine: Investigation Conducted Among Soldiers. C. G. Blitch and J. F. Doyle.—p. 46.
Extract from Medical History of the Post Fort Monroe, Va. Rendered by G. E. Cooper; submitted by F. M. Hartsock.—p. 52.
The Life of Jonathan Letterman. J. M. Phalen.—p. 62.

84: 97-192 (Feb.) 1939

Veterans' Administration and Its Relation to National Defense. F. T. Hines.—p. 97.
Current Activities in the Medical Department Equipment Laboratory, Carlisle Barracks, Pa. G. L. McKinney.—p. 105.
Medical Department Lessons from the Fourth Army Maneuvers, 1937. D. C. Hilton.—p. 115.
Observations on the Medical Department of the Japanese North China Expeditionary Force. L. A. Fox.—p. 130.
Soldier's Clothing. S. A. Cohen.—p. 138.
The Venereal Diseases: United States Army. H. C. Michie.—p. 146.

Incidence of Syphilis in Army.—Blount points out that the Kline diagnostic and exclusion tests were performed on the serums of 5,000 army recruits and soldiers having previous service. All serums giving positive reactions were checked by the Wassermann and Kahn reactions. Sixty-one cases (1.2 per cent) of syphilis were found. The incidence varied from 0.52 per cent in recruits from 18 to 23 years of age to 5.5 per cent in those from 30 to 35 years old. In soldiers having previous service the incidence varied from 1 per cent in those from 20 to 23 years old to 18.1 per cent in those from 42 to 59 years of age. However, few men between the ages of 42 and 59 years were examined. Soldiers with tropical service had a slightly higher incidence of syphilis than did those with service only within the continental borders of the United States. More than 50 per cent of the cases of syphilis found were so-called latent, but a relatively large number of cases of cardiovascular and cerebrospinal syphilis were found. The author believes that the examination of all recruits, as well as periodic surveys of the personnel of the army, would be of value to it.

Minnesota Medicine, St. Paul

22: 71-144 (Feb.) 1939

Advances in Prevention and Treatment of Contagious Diseases of Childhood. E. S. Platou and P. F. Dwan, Minneapolis.—p. 71.
Essentials in Diagnosis of Congenital Heart Disease. T. J. Dry, Rochester.—p. 78.
*Polyneuritis in Children. R. E. Cutts, Minneapolis.—p. 89.
What Is New in the Field of Food Sensitiveness. W. C. Alvarez, Rochester.—p. 92.
Type of Chronic Nervous Depression in Women Relieved by Administration of Thyroid Extract. G. R. Kamman, St. Paul.—p. 97.
Fracture of the Elbow and Volkmann's Ischemic Contracture. H. W. Meyerding, Rochester.—p. 100.
Practical Points in Anesthesia. R. T. Knight, Minneapolis.—p. 105.

Polyneuritis in Children.—Cutts states that the incidence of polyneuritis among the children of Minnesota is low but that the prolonged and severe disability requiring nursing care, physical therapy and, in some cases, orthopedic surgery make the condition an important one. The gross pathologic changes of polyneuritis are usually minimal although some swelling and congestion of the peripheral nerves may be detected. The symptoms of polyneuritis are usually both sensory and motor. Customarily the lower extremities are first involved, with progression to the upper extremities and trunk. The distribution is roughly symmetrical. General treatment during the active stage consists of supportive measures, elimination of foci and sources of toxin, improvement of nutrition, protection of the weakened muscles and the use of oxygen when the muscles of respiration are involved. As recovery progresses, physical therapy and orthopedic appliances are usually indicated. Surgery may be required to decrease disability when recovery has been incomplete. Specific measures are indicated when a specific cause can be determined. Metallic poisoning, either accidental or as a result of therapy, accounts for a considerable proportion of these cases. Of the metals the most frequent offender is lead. Lead may be ingested by children as a result of chewing paint from furniture and toys. Food and water may become contaminated from pipes or containers. Insecticides and sprays are other possible sources. The prognosis for complete recovery after lead polyneuritis is not as good as after most types because involvement of the spinal cord is generally greater. In the cases presenting evidence of lead encephalitis the prognosis is considerably worse. Arsenic, thallium and bismuth are other metals capable of producing polyneuritis. Cases of polyneuritis due to or associated with infections are less readily classified. That following diphtheria is considered the most common type in children. Diphtheritic polyneuritis is almost invariably preceded several days by local paralysis such as the paralysis of the soft palate and pharynx associated with faucial diphtheria. Neuritis occurs almost exclusively in cases in which antitoxin has been administered late or in inadequate dosage. A small group of cases has been reported in which neuritis developed several days after a brief febrile illness of undetermined origin. The polyneuritis in these cases is roughly symmetrical, usually associated with bilateral facial paralysis, frequently affecting proximal muscle groups of the extremities more than the distal groups. If the acute stage is survived, recovery is usually rapid and complete. Periarteritis nodosum is said to be accompanied by polyneuritis in 20 per cent of the cases. It occurs rarely and the neuritic symptoms are likely to be overshadowed by the other symptoms of the disease. Polyneuritis occasionally complicates other diseases: tuberculosis, typhoid, paratyphoid, malaria, septicemia, pyogenic infections, scarlet fever and mumps. Diabetes in children is rarely complicated by polyneuritis. Several drugs other than the metals mentioned have been cited as causes of polyneuritis. Among these are dinitrophenol, atabrine, sedatives of the chloral group and, rarely, anesthetics, including ether and

procaine hydrochloride. Occasional cases have been reported following the administration of foreign protein such as therapeutic serums. Hematoporphyrinuria and hematoporphyrin hydrochloride used therapeutically may also cause polyneuritis. Dietary deficiencies are known to be capable of causing neuritis. Until recently, massive doses and parenteral administration of vitamin B have not been practicable. Since vitamin B_1 is now available in pure concentrated form, information should soon be available concerning its use in the less common types of polyneuritis. Whether large doses of vitamin B_1 orally or parenterally will have any beneficial effects in the treatment of polyneuritis following diphtheria and the metallic and drug intoxications remains to be determined.

Nebraska State Medical Journal, Lincoln

24: 41-80 (Feb.) 1939

Distortions Accompanying Congenital Single Lip Cleft. V. P. Blair, St. Louis.—p. 41.
Extension of Operability in Carcinoma of the Stomach. K. Meyer and P. Shapiro, Chicago.—p. 44.
Unnecessary Treatment in Mitral Valve Disease. A. L. Smith, Lincoln. —p. 49.
Therapy of Convalescent Human Serum. F. Clarke, Omaha.—p. 55.
Surgical Relations of the Thyroid Gland. M. Grodinsky, Omaha.—p. 58.
An Attack on Delinquency with a Discussion of "Active Play Therapy." J. H. Waterman and J. C. Nielsen, Ingleside.—p. 62.
Differential Diagnosis of Vesical Neck Obstruction. E. Davis, Omaha.—p. 66.
Eruption Due to Hydrophen Ointment: Case Report. D. J. Wilson, Omaha.—p. 70.

New England Journal of Medicine, Boston

220: 129-174 (Jan. 26) 1939

Treatment of Chronic Alcoholism with Amphetamine (Benzedrine) Sulfate. W. Bloomberg, Boston.—p. 129.
The Control of Medical Science. M. V. MacKenzie, Boston.—p. 136.
Acute Hemolytic (Lederer's?) Anemia: Report of Case. T. H. McGavack, New York.—p. 140.
Disease of Besnier-Boeck-Schaumann. L. Babalian, Portland, Maine.—p. 143.
Popliteal Aneurysm: Report of Two Cases. A. R. Kimpton and E. R. Sanderson, Boston.—p. 146.
Syphilis. C. G. Lane, Boston.—p. 156.

New Orleans Medical and Surgical Journal

91: 335-402 (Jan.) 1939

Gas Bacillus Infection, with Special Reference to the Therapeutic Value of the X-Rays. L. S. Charbonnet Jr. and R. W. Cooper, New Orleans. —p. 335.
Tumors of Adrenal Gland in Early Childhood: Report of Two Cases. A. R. Morgan, Crowley, La.—p. 345.
Elliott Treatment of Pelvic Inflammatory Diseases of Ambulatory Women: Analysis of Seventy-Three Cases. E. C. Smith, New Orleans.—p. 351.
*Serum Volume Test for Hemorrhagic Diathesis in Jaundice: Further Observations. F. F. Boyce and Elizabeth M. McFetridge, New Orleans.—p. 357.
Chronicity of Pulmonary Tuberculosis. S. Jacobs, New Orleans.—p. 364.
Advantages and Disadvantages of Cyclopropane Anesthesia. M. C. Beck, New Orleans.—p. 369.
The Thrombocyte in Allergy: Preliminary Report. N. F. Thiberge, New Orleans.—p. 372.

91: 403-462 (Feb.) 1939

Subdeltoid Bursitis. P. A. McIlhenny, New Orleans.—p. 403.
Some Gynecologic Problems Occurring During the Reproductive Period. V. S. Counseller, Rochester, Minn.—p. 407.
The Constitutional Psychopath as a Community Problem. T. H. Pargen, Jackson, La.—p. 413.
Myasthenia Gravis: Report of Case Treated with Oral Prostigmine. L. L. Cazenavette, New Orleans.—p. 417.
Dietetic and Insulin Management of the Juvenile Diabetic. P. H. Herron, Monroe, La.—p. 423.
Value of Bronchoscopy in Bronchiogenic Carcinoma. G. J. Taquino, New Orleans.—p. 429.
Radiologic Aspects of Bronchiogenic Carcinoma. A. D. Mayoral, New Orleans.—p. 436.
Bronchiogenic Carcinoma from the Bronchoscopic Aspect: Review of Some Recent Literature. H. L. Kearney, New Orleans.—p. 437.
Pathologic Aspects of Bronchiogenic Carcinoma. B. Halpert, New Orleans.—p. 439.

Serum Volume Test for Hemorrhagic Diathesis.—Boyce and McFetridge discuss the underlying causes of the hemorrhagic diathesis in jaundice with special reference to Quick's prothrombin theory. The procedure for carrying out their serum volume test for the diagnosis of the hemorrhagic diathesis in jaundice is given in an abstract in THE JOURNAL Jan. 8, 1938, page 158. Twenty-one cases of jaundice are reported, all of which were studied by the serum volume test, the Ivy venous pressure test and the Quick hippuric acid test of hepatic function. The serum volume test proved correct in all cases, but the Ivy test did not. Since the serum volume test and the Quick hippuric acid test failed to correspond frequently, the authors ask whether depressed hepatic function can be invoked to explain all cases of bleeding in jaundice. They outline the preparation of jaundiced patients for surgery, referring especially to the use of blood transfusion, dextrose and vitamin K.

Physiological Reviews, Baltimore

19: 1-134 (Jan.) 1939

Reaction of Muscle to Denervation. Sarah S. Tower, Baltimore.—p. 1.
Stuttering. S. Cobb and E. M. Cole, Boston.—p. 49.
Renal Tubular Excretion. J. A. Shannon, New York.—p. 63.
Physiology of Human Hair. C. H. Danforth, San Francisco.—p. 94.
Respiration in Diving Mammals. L. Irving, Swarthmore, Pa.—p. 112.

Southern Medical Journal, Birmingham, Ala.

32: 125-232 (Feb.) 1939. Partial Index

Fracture and Fracture-Dislocation of the Astragalus. O. L. Miller, Charlotte, N. C., and L. D. Baker, Durham, N. C.—p. 125.
Management of Compound Injuries of Face and Jaws. J. B. Brown, St. Louis.—p. 136.
Roentgen Treatment of Carcinoma of Larynx and Hypopharynx. W. G. Scott and S. Moore, St. Louis.—p. 144.
*Use of Testosterone Propionate in Prostatic Hypertrophy. R. Bolend, Oklahoma City.—p. 154.
Conservative Management of Appendical Peritonitis. C. E. Gardner Jr., Durham, N. C.—p. 157.
Staphylococcic Septicemia. P. F. Stookey and L. A. Scarpellino, Kansas City, Mo.—p. 173.
Further Observations on the Schiller Presumptive Test for Carcinoma of the Cervix. O. B. Hunter, Washington, D. C.—p. 179.
Puerperal Inversion of the Uterus. M. P. Rucker, Richmond, Va.—p. 197.
Review of Some of the Histogenetic Relationships of the Skin. M. T. Gaines, Mobile, Ala.—p. 202.
Present Status of Shock and Fever Therapy in Ophthalmology. S. C. Howell, Atlanta, Ga.—p. 208.
Histopathology of Sinusitis. P. J. Bayon, New Orleans.—p. 211.
Statewide Program in Health Education. H. H. Walker, Knoxville, Tenn.—p. 219.

Testosterone Propionate in Prostatic Hypertrophy.—Recently Bolend reported the results obtained with the use of testosterone propionate in twenty-three unselected cases of enlarged prostate with urinary retention. Ten patients are clinically well or symptom free, seven patients are improved and six experienced no improvement. Critical examination of the clinical data shows that, while ten patients are clinically well and symptom free, some of them carry from 5 to 35 cc. of residual urine. The patient giving the most striking clinical response has 130 cc. of residual urine. These patients, however, all consider themselves cured. In a later series of thirty-five patients the clinical course corresponds to the foregoing except that there was a higher percentage of beneficial results, owing to the fact that only patients with uncomplicated benign hypertrophy were treated. It has not been possible to demonstrate conclusively by palpation or by cystograms that the prostate is actually reduced in size. Hence, in his effort to determine how and why these patients are able to empty their bladders more completely, the author studied sections from the prostate of seven patients treated with varying amounts of the drug. Careful and accurate clinical data with biopsies before and after treatment were kept. Three changes were observed in the gland following treatment: (1) an exaggeration of glandular hyperplasia, (2) a reduction or at least no increase in the stroma and (3) a reduction in the inflammatory reaction. If there is any change in the individual epithelial cells, the change was not constant enough to be significant in the cases studied.

Surgery, St. Louis

5: 1-160 (Jan.) 1939

Tumors of the Hands and Feet: Introduction. G. T. Pack, New York. —p. 1.
Carcinoma of the Hands and Feet. M. L. Mason, Chicago.—p. 27.
Subungual Melanoma: Differential Diagnosis of Tumors of the Nail Bed. G. T. Pack and F. E. Adair, New York.—p. 47.
Angiomatous Tumors of the Hands and Feet. A. W. Oughterson and R. Tennant, New Haven, Conn.—p. 73.
Tumors of Synovia, Tendons and Joint Capsules of the Hands and Feet. A. Brunschwig, Chicago.—p. 101.
Tumors Primary in the Bones of the Hands and Feet. B. L. Coley and N. L. Higinbotham, New York.—p. 112.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

35: 241-320 (Oct.-Dec.) 1938

Acute Intussusception in Children. C. P. G. Wakeley and F. R. B. Atkinson.—p. 241.
*Causation of Paralysis in Diphtheria. I. Taylor.—p. 250.
Chorea and Athetosis in Childhood. J. Shafar.—p. 259.
Exophthalmic Goiter in Children. F. R. B. Atkinson.—p. 267.

Cause of Paralysis in Diphtheria.—Taylor discusses some of the evidence bearing on the manner in which diphtheria toxin attacks the nervous system. The view held by some authors is that all forms of diphtheritic paralysis are due to hematogenous toxemia, the frequency with which certain nerves are attacked being explained by the selective affinity of the toxin for these nerves. The close anatomic relationship between the site of infection and the initial paralysis has led other observers to discard this theory in favor of extreme views of a different nature. They state that the toxin first attacks the nerves in the locality of the site of infection and that all other paralyses are produced by diffusion of toxin in the nervous system from the point of entry. This view receives some support from the orderly sequence of paralyses commonly noted in faucial diphtheria. The two schools of thought meet in the theories advanced by Walshe that (1) the initial paralysis is caused by lymphogenous invasion of the nervous system, the toxin passing from the site of infection to the central nervous system by the perineural lymphatics, (2) generalized paralysis is the result of hematogenous toxemia and (3) accommodation paralysis is the result of the selective affinity of circulating toxin for certain elements of the nervous system. Most clinicians and experimental workers are agreed that the late multiple neuritis following diphtheria, giving rise to diphtheritic pseudotabes, is due to hematogenous toxemia. The strongest evidence of the hematogenous origin of such paralyses is the fact that the experimental injection of diphtheria toxin intravenously in animals produces a multiple neuritis which is exactly comparable to this late form of peripheral neuritis found in diphtheria in the human being. In addition to the limb paralysis, accommodation paralysis must be included in the group of symptoms due to blood-borne toxin, because this form of paralysis is found quite frequently in both faucial and extrafaucial diphtheria. There are good grounds for believing that hematogenous toxemia is capable of producing, in addition to generalized paralysis, a type of paralysis similar to the local paralysis found in faucial diphtheria. The author believes that one may thus accept the possibility that blood-borne toxin may play some part in the production of local paralyses as they are encountered in faucial diphtheria. The close anatomic relation between the local paralysis and the site of infection can leave no doubt that the nervous system is primarily attacked by local absorption of toxin. Unilateral faucial diphtheria frequently results in paralysis of the corresponding side of the palate. An important and familiar clinical observation is what has been described as the "march of paralysis." One cannot but be impressed by the orderly way in which paralysis develops in most severe cases, palatal paralysis preceding pharyngeal and the diaphragm being involved before the intercostal spaces. Such a march suggests the slow spread of toxin in the central nervous system.

British Journal of Dermatology and Syphilis, London

51: 1-50 (Jan.) 1939

*Etiology of Seborrheic Dermatitis. G. B. Dowling.—p. 1.
*Id. G. H. Percival.—p. 7.
Reaction of Stools and Its Relation to Diseases of the Skin. R. Aitken.—p. 13.
Bazin's Disease. J. Kinnear.—p. 18.
Two Families Showing Hereditary Ectodermal Dystrophies. C. Hardwick.—p. 24.

Etiology of Seborrheic Dermatitis.—Dowling states that the cause of seborrheic eczema is not established but that the available evidence points to a primary infection with yeastlike organisms, usually saprophytic but capable of developing varying degrees of pathogenicity under different conditions. Why some cases are fixed and stationary while others are acute is not always easy to explain, but there can be little doubt that these variations depend on a number of factors. Seborrheic eczema in its pure form often undergoes alteration owing to pyococcic invasion or to numerous local and constitutional factors. These secondary changes may so alter the clinical picture that the diagnosis of the original dermatosis may be a matter of guesswork. One has to depend largely on the presence of a certain number of typical lesions, the characteristics of which Darier has described.

Etiology of Seborrheic Dermatitis.—Percival separates seborrheic dermatitis into three groups: (1) pityriasis capitis and eczematide lesions affecting the hairy or potentially hairy regions, (2) flexural dermatitis, which is almost always exudative, and (3) pustular dermatitis affecting areas covered with strong hair. He summarizes the evidence which has a bearing on the etiology of cases labeled "seborrheic dermatitis" into the following: 1. An almost specific type of organismal infection is associated with each case group and clinical observation of the course of the eruptions and their response to treatment suggests, even in the absence of scientific corroboration, that infection plays a definite part in their production. 2. In all three case groups a type of eczematous reaction, which is distinct for each group and which is different from the eczematous reaction produced by chemical irritation, is a characteristic and diagnostic feature of the eruption. 3. The clinical features, bacteriologic findings and response to treatment in the three groups of cases are so distinctive that each group stands out clearly as an individual clinical entity. In the absence of definite proof the author suggests that an external infective origin should be presumed temporarily for all three groups. Furthermore, the same presumption might be extended to include infectious eczematoid dermatitis, and in descriptive nomenclature this group might be placed in the same class.

Indian Medical Gazette, Calcutta

73: 713-776 (Dec.) 1938

Follow-Up of a Mass Treatment with Injectable Atabrine. A. T. W. Simeons.—p. 713.
Enumerative Studies in Benign Tertian Malaria. V. Sivalingam.—p. 715.
*Use of Cobra Venom in Nerve Leprosy. J. S. Chowhan and R. N. Chopra.—p. 720.
Investigation and Conservative Treatment of the Nasal Factor in Asthma. F. T. Harrington.—p. 725.
Hobbs Treatment with Glycerin Applied to Male Urethra in Gonorrhea. R. L. Raymond, K. K. De and U. Soe Nyun.—p. 729.
Induction of Labor. G. P. Charlewood.—p. 733.
Report of a Case of Early Acquired Syphilis in a Patient with Tertiary Stigmas of Untreated Yaws. R. V. Rajam.—p. 735.
Treatment of Animals with Antirabic Vaccine. R. O. A. Smith, J. P. McGuire, E. D. Stephens and B. N. Lahiri.—p. 736.

Cobra Venom in Nerve Leprosy.—The nerves most frequently involved in leprosy are the ulnar, peroneal, posterior tibial and median. These nerves were thickened and painful in nearly all the cases that Chowhan and Chopra observed. Injections of cobra venom relieved the severe nerve pains due to lepra reaction. In some cases injections were given locally to relieve pain of a particular part of the body, which was interfering with the sleep of the patient. It had been suggested that relief of nerve pain and other nerve symptoms in leprosy, after cobra venom, is due to its choline esterase-like action. In persons suffering from severe and constant nerve pains, there is probably an excess of acetylcholine in tissues produced by pathologic overstimulation of nerves and possibly the choline esterase normally present is insufficient to neutralize it. Since injections of cobra venom relieved nerve symptoms it is possible that it acted by neutralizing the excess of acetylcholine present. It is also possible that cobra venom may itself act like choline esterase or may have a substance of this nature present in it. The study of the biochemical changes in the blood of patients with leprosy before and after the injections of cobra venom is in progress, particularly its effects on choline esterase. It is not expected that cobra venom will ever replace chaulmoogra oil and other measures in the treatment of the nerve type of leprosy, but it may serve as an additional weapon in ameliorating some of the troublesome symptoms. From 60 to 70 per cent of cases of leprosy in India are of the

nerve type. Cobra venom has been shown to give marked relief in from 60 to 80 per cent of these cases, particularly if the injections are given into the macular and anesthetic patch. The sensations of numbness and formication are also improved. The relief of pain was observed after the second or third injection and the pain disappeared almost completely after the fifth or sixth injection. The criteria of improvement were the return of normal sensations and less disturbed sleep. Mixed injections of vitamin B_1 and cobra venom have resulted in definite benefit in a few cases of neuritis which did not improve with cobra venom alone. Vitamin B and cobra venom if used together would most probably be highly beneficial therapeutic agents in neuritic leprosy.

Medical Journal of Australia, Sydney

2: 1103-1144 (Dec. 31) 1938

Sulfanilamide. Beatrix Durie.—p. 1103.
Use of Sultanilamide in Some Clinical Conditions. J. Chesterman.—p. 1110.
Q Fever: Factors Affecting the Appearance of Rickettsiae in Mice. F. M. Burnet and M. Freeman.—p. 1114.
Observations on Vulvovaginitis in Children. N. M. Gibson and C. J. Wiley.—p. 1116.
Spermatorrhea in Trichosurus Vulpecula and Other Marsupials. A. Bolliger and A. L. Carrodus.—p. 1118.
Blackwater Fever Following the Administration of Atabrine. C. E. M. Gunther.—p. 1119.
*Method of Giving Blood Transfusions to Infants. V. L. Collins.—p. 1121.

Blood Transfusions in Infants.—Collins describes a method of giving blood transfusions to infants which makes use of the malleolar vein. A needle with a stilet as a cannula, blood taking apparatus, rubber tubing with a lumen of 4 mm. and a record syringe with a three-way stopcock supply are the apparatus needed. The needle with a stilet renders the cannulizing of even a small vein a simple procedure. It is an ordinary large hypodermic needle (gage 18, 24 mm. in length by 1.2 mm. in thickness) shortened to 20 mm. The stilet projects 4 mm. beyond the end of the needle, which is cut straight across and beveled round its circumference so that it tapers to the stilet. One piece of rubber tubing, 25 cm. long, runs from the stopcock to the adapter, which fits the needle. A second piece of tubing, 30 cm. long, connects the stopcock to the vessel containing compatible citrated blood. The infant's foot is bandaged to a splint, the position of the malleolar vein is noted and under local anesthesia a transverse or oblique incision is made across the line of the vein just proximal to the medial malleolus. By placing a pair of Spencer-Wells forceps in the wound and opening them in a plane at right angles to the incision, the subcutaneous tissues can be opened as deep as the periosteum. When the periosteum is bared, the vein can be mobilized with an aneurysm needle, and two pieces of catgut passed beneath it in the customary manner. With fine scissors the vein is then cut half across, and the needle and stilet are introduced. The record syringe is attached to the stopcock and the rubber tubing is connected to the flask of blood. The tap is adjusted and blood is drawn into the syringe. Then the tap is turned on and any air in the syringe is expelled through the tube. As soon as blood is dropping from the adapter in this tubing, the stilet is removed and the adapter is fitted into the needle in the vein. The small amount of air in the needle can be ignored. The blood is then gently forced into the vein, and by refilling the syringe and adjusting the stopcock each time the desired amount of blood can be given. When the transfusion is completed, the pieces of catgut surrounding the vein should be removed and a dressing applied. A horsehair suture is rarely required for the incision. The amount of blood and the rate at which it is given depend on the circumstances. Usually it is desirable to take from twenty to thirty minutes to give 90 cc. of blood to an infant weighing 2.7 Kg. (6 pounds). In larger infants it is more satisfactory to transfuse blood by the continuous drip method, but this is not always possible when the veins are small. The author states that the method described has been found so satisfactory for intravenous therapy that it is now used throughout his hospital for all blood transfusions and the intravenous administration of saline solution. A slightly larger needle is used for continuous transfusion.

Journal de Chirurgie, Paris

53: 161-304 (Feb.) 1939

Parathyroid Osteosis: Case. P. Moulonguet and J.-A. Lièvre.—p. 161.
Sinucarotid Enervation: Technic, Indications, Results. L. Léger.—p. 176.
*Surgical Treatment of Diabetes. J. Bréhant.—p. 195.

Surgical Treatment of Diabetes.—Bréhant says that the attempts at surgical cure of diabetic conditions are only in their beginnings. The medical treatment looks only to substitution for the deficient pancreatic function by the application of endocrine therapy; the surgical treatment aims to modify the relation between the two neurohumoral systems, which regulate the sugar metabolism and assure glycemic equilibrium. These two systems are: (1) the apparatus aiming at hypoglycemia, which consists of the pancreatic islands, the secretion of which is dependent on the pneumogastric nerve, and accessorily of certain endocrines such as the salivary glands and the parathyroids; (2) the apparatus acting in the hyperglycemic direction, which consists of the adrenal medulla, the secretion of which is dependent on the splanchnic nerves, and secondarily of certain endocrine glands such as the hypophysis and the thyroid. The surgical attempts that have been carried out thus far have aimed either at the strengthening of the vagopancreatic apparatus or its connected glands or at the depression of the adrenosplanchnic apparatus and its connected glands. The attempts at activation of the pancreatic function so far have given deceptive clinical results. Pancreatic transplantation is not feasible in human subjects. Sympathectomy of the arteries of the pancreas so far has only formed a part of the experimental sphere. Moreover, the attempts at transformation of the pancreas into a gland that is only endocrine, by alteration of the external function, have not given reliable clinical results. Among the attempts aiming to modify the endocrine status of the accessory glands, the only ones which rest on approved physiologic bases are the attempts of hormonal activation of the salivary glands or of the inhibition of the hypophysial apparatus. The first ones have not given appreciable clinical results; those of the second group were more encouraging, but the seriousness of hypophysectomy prevents the practiced application of a surgical intervention on this gland. There remain the attempts at the suppression of the adrenal apparatus. Rather than to attack directly the adrenal gland, the attempts thus far tend to rely to a certain extent on the operations of glandular enervation and in particular on splanchnicectomy. These attempts are sufficiently encouraging to be considered worthy of a trial in grave forms of diabetes that are resistant to insulin.

Presse Médicale, Paris

47: 153-176 (Feb. 1) 1939

*Accidents of Skiing: Their Genesis, Frequency and Distribution. J. Braine and C. Goury.—p. 153.
Faciocervicothoracobrachial Neuralgic Syndrome Probably of Sympathetic Etiology. J.-A. Chavany.—p. 156.

Accidents of Skiing.—Braine and Goury point out that the technic of this sport has been specified and improved during recent years. Regarding the accidents that occur in the course of skiing, they say that in view of the large number of persons who do use skis the frequency of the accidents is relatively slight, other snow sports, such as tobogganing and bobsleighing, being much more dangerous. Statistics which are difficult to establish are deceptive; the seriousness of the accidents differs greatly and many of the minor lesions (small muscular and ligamentous ruptures and mild sprains), which constitute the majority of accidents, escape medical control. Accordingly, the authors cite figures with certain reservations. The incidence of skiing accidents is 0.5 per thousand. In the region of Freiburg, with more than 2,000 skiing students every Sunday during the winter, fourteen fractures and 160 sprains have been counted during one season. In the region of Innsbruck, 157 accidents, of which eighty-seven were fractures, have been counted in one year. After citing figures on the percentages of the serious, moderate and mild accidents, the authors give their attention to the etiology, pointing out that it depends on the equipment, the skiing terrain, the physical condition of the skier and the type of skiing. In estimating the equipment, the authors describe and illustrate the boots, the sticks and

their correct and incorrect attachment to the hand, and the different types of bindings, that is the devices by which the skis are attached, and so on. They also illustrate how the sticks may eventually cause dislocation of the shoulder. Discussing the role of the skiing terrain in accidents, they say that the frequency and the type of accidents, as well as the localization and the character of the traumatic lesion, are largely determined by the condition of the snow. Its quality varies according to the season. Especially dangerous is the snow at the beginning of the season and in the spring. Moreover, the consistency of the snow varies from day to day. Recently fallen snow may obscure obstacles. The physical condition of the skier and his training are also important factors in the etiology of accidents, for traumas are most frequent at the beginning of the season. That the type of skiing plays a part in the causation of accidents is proved by their high frequency in going down slopes and in mountain skiing. In skiing on level ground accidents are comparatively rare. In the last part of this report the authors give figures on the characteristic lesions that occur in skiing. The therapy of these lesions they intend to discuss in a later report.

Schweizerische medizinische Wochenschrift, Basel

69: 117-140 (Feb. 11) 1939. Partial Index

Causes of Accidents in Skiing. M. Petitpierre.—p. 117.
Morphology and Function of Bone Marrow in Osteopathies. N. Markoff.—p. 120.
*Neuromuscular Impairment of the Young of Rats with E Hypovitaminosis and Their Treatment with Synthetic Vitamin E. V. Demole and H. Pfaltz.—p. 123.
*Calcium and Training of Athletes. P. Martin.—p. 125.

Neuromuscular Impairment of Young of Rats with E Hypovitaminosis.—Demole and Pfaltz show that the young of rats with E hypovitaminosis frequently develop neuromuscular lesions during the period of lactation. Symptoms of these lesions are laziness, awkwardness, paresis, paralysis and convulsions. The administration of synthetic *dl*-alpha-tocopherol as well as of its acetyl ester during the first half of the period of lactation (up to fifteen days after birth) either to the mother animal or to the young prevents the appearance of these disturbances. If the tocopherols are administered during the second half of the period of lactation, existing mild disturbances such as awkwardness and pareses are cured but complete paralysis is not influenced.

Calcium and Training of Athletes.—Martin reports his studies on the influence of calcium therapy during the training of athletes. The young athletes who were the subjects of the experiments were mostly city dwellers who lived in modest circumstances and whose food was frequently deficient in calcium salts. Moreover, working in offices during the day, they had little opportunity to benefit from fresh air and sunshine. Before describing his experiments the author reviews some aspects of the physiologic and biologic role of calcium. Following this he cites several authors who employed calcium in treating athletes. His own experiments aimed to answer the question whether the administration of calcium permits the progressive intensification of training without producing the signs of excessive training. The tests were made on young runners (400 meters). Of a group of twenty-seven athletes, fifteen underwent training without calcium therapy; the other twelve were subjected to intensive calcium therapy during the five months of training (December to April). They were given daily two tablets of calcium gluconate or an equivalent amount of calcium in some other form. The author gives tabular reports of the results of the tests at the onset and at the end of the period of training. Recapitulating the results he says that the amelioration of the coefficient of fatigability (difference between the pulse rate on arrival after the 400 meter run and the normal pulse rate) was 60 per cent higher in the athletes who had received calcium than in those who had not received it. The improvement of the coefficient of rapidity of recuperation to the normal state (difference between the pulse rate ten minutes after finishing the run and the normal pulse rate) was 33.7 per cent better in the athletes who had received calcium therapy. The athletes tolerated the administration of calcium well. There were no complaints about difficulties in the absorption of the medicament. On the contrary, they felt the beneficial effect on their general condition.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

13: 1-80 (Jan. 31) 1939. Partial Index

Origin of Insatiable Pneumothorax: Experiments. G. Baldacci.—p. 1.
Declive Posture in Therapy of Pulmonary Tuberculosis. D. D'Arcangelo and T. Todoroff.—p. 7.
*Influence of Parapneumothoracic Pleurisy on Contralateral Tuberculosis. N. Cavarozzi.—p. 21.

Parapneumothoracic Pleurisy in Contralateral Tuberculosis.—Cavarozzi's work was meant to determine whether parapneumothoracic pleurisy has an influence on the evolution of contralateral tuberculosis and what the mechanism of action of that influence is. The author followed the behavior of the contralateral lung before development and after recovery or improvement of typical, abundant and noncomplicated parapneumothoracic pleurisy in fifty-seven adults. Before development of pleurisy the contralateral lung was normal in eight cases. In the remaining forty-nine the structure showed clinical symptoms and x-ray changes varying from conditions of adenopathies or tuberculous infiltrations to different forms of tuberculosis. Collapse of the pneumothoracized lung was clinically efficient in ten cases, including those in which the contralateral lung was normal. After parapneumothoracic pleurisy the clinical symptoms and the roentgenograms of the contralateral lung were unchanged in twenty-five cases, including those in which the structure was previously normal. There was regression of tuberculosis in sixteen cases and aggravation of the disease in sixteen cases. The author found that behavior of the contralateral lung parallels that of the pneumothoracized structure in all cases unless the pleuritic fluid is infectious. In the presence of clean pleuritic fluid (either spontaneous or from thoracentesis and lavages) the contralateral lung does not change in most of the cases or it shows regression of tuberculosis. In these cases pleurisy follows a favorable evolution, and prompt recovery of the patients results. Aggravation of contralateral tuberculosis after parapneumothoracic pleurisy is observed in cases in which the pleuritic fluid is purulent or suppurative. However, the evolution of the condition is modified if the fluid is transformed from purulent to clean by proper treatment. According to the author, parapneumothoracic pleurisy has a mechanical action on collapse and a toxic and infectious action on the general system with a consequent indirect action on the contralateral lung. The nature of the action is biologic and infectious as the changes of collapse interfere with the control or stimulation of tuberculosis of the pneumothoracized lung, and the acute infectious nature of the fluid disturbs directly the general trophism.

Zeitschrift für Kinderheilkunde, Berlin

60: 285-466 (Dec. 19) 1938. Partial Index

Electrocardiography in Nurslings. A. Nádrai.—p. 285.
Therapy and Prophylaxis of Rickets with Single Large Dose of Vitamin D_2 and D_3. H. Brockmann.—p. 359.
Experimental Studies on Whooping Cough (Blood Picture, Sedimentation Reaction of Blood, Encephalitis). W. Camerer.—p. 371.
Behavior of Blood-Cerebrospinal Barrier in Experimental Poliomyelitis. M. Kasahara, T. Kakusui and Sha-Shi-Nan.—p. 391.
Occurrence of Enterobius Vermicularis in Appendixes Removed by Surgery or Obtained in Postmortem Examinations. O. Füsthy.—p. 394.
Acute Hemolytic Anemia (Type Lederer). W. Brenner.—p. 405.
*Susceptibility to Serum Disease. A. Beer.—p. 418.
Subarachnoidal Hemorrhage During Childhood. E. Engelhardt.—p. 436.

Susceptibility to Serum Disease.—By the statistical analysis of a large material, Beer aimed to detect fluctuations in the susceptibility to serum disease. He determined the incidence of serum disease in the cases in which treatment with diphtheria horse serum was administered during the twenty years from 1916 to 1935. He observed an increase in the percentage of serum disease during the spring months, more exactly during May and June compared to March and April. This increase he regards as the result of the general alteration in reactivity to which the organism is subject at this time of the year. There was no definite evidence of changes in the susceptibility in connection with the different ages of the patients; to be sure, the figures seemed to indicate with some probability that there was a greater susceptibility to serum disease during the first three or four years of life. However, this evidence was not sufficiently convincing to justify the drawing of conclusions. The author gave attention also to the articular complications of serum dis-

ease and observed an indisputable augmentation of their incidence corresponding to the increasing ages of the patients; moreover, he noted that the reactions on the part of the joints became manifest earlier in the older children and that the late articular complications (later than sixteen days after the injection) became rare in children over the age of 7 years. The author considers that these fluctuations in the type of articular involvement are the result of the progressive development of the joints.

Klinicheskaya Meditsina, Moscow

16: 1605-1772 (No. 12) 1939. Partial Index

*Controversial Points in Teaching of Rheumatic Disease of the Heart. Ya. G. Etinger.—p. 1609.
Fate of Syphilitic Patients from Ten to Forty Years After Infection. B. N. Zilberman.—p. 1626.
Differential Diagnostic Errors in Recognition of Tuberculosis. T. D. Kan.—p. 1632.
Correlation of Some Cardiovascular Reactions in Croupous Pneumonia. I. S. Shnitser.—p. 1641.
Venous Pressure in Croupous Pneumonia. D. N. Prudnikov and V. V. Bazhenov.—p. 1647.
Intravenous Alcohol Therapy of Croupous Pneumonia. T. S. Mnatsakanov.—p. 1654.

Rheumatic Disease of the Heart.—Valvular lesions of the heart of nonsyphilitic origin, according to Etinger, are associated as a rule with rheumatic infection regardless of history of previous attacks of inflammatory disease of the joints. The etiologic identity of the so-called arthritic valvular lesions of the heart, as well as of those not associated with involvement of the joints, has been established by anatomic and clinical studies. The clinical diagnosis of rheumatic endocarditis is possible only on the demonstration of functional valvular derangement, which is possible during the acute period in relatively few cases. The question of the myocardial or endocardial origin of a systolic murmur heard in the apex in the acute stage of rheumatism has not been solved. The author stresses the point that regardless of the mechanism determining this murmur it does not necessarily point to a later development of the valvular lesion. In his experience not less than 50 per cent of such murmurs disappeared in a later course. Diagnosis of the involvement of the bicuspid valve is possible only after the lesion has been established some time after the attack. The recognition of the aortic lesion is not infrequently possible during the acute period on the basis of the diastolic murmur. Definite diagnosis of a mitral lesion is possible not earlier than one year after an attack of rheumatic arthritis. Its determining clinical syndrome is the appearance of a presystolic murmur, which indicates the beginning stenosis of the mitral opening. The progressing sclerosis of the involved valvular apparatus is conditioned not so much by the rheumatic flare-ups as by overwork and functional strain. The incidence of cardiac lesions in connection with recurrent attacks of joint inflammation is about the same as that associated with the first attack; thus rheumatic patients who have suffered one, two and more arthritic attacks are not guaranteed from developing valvular lesions in subsequent attacks. The absolute number of lesions arising in connection with recurrences is relatively small when compared with lesions arising in the prearthritic period or in connection with the first arthritic attack, which is explainable on the basis of diminishing frequency of recurrences with each attack as well as with diminution of the percentage of rheumatics with intact valvular apparatus with each consecutive joint attack. The author stresses the high incidence of valvular lesions in the prearthritic period. In his series of 420 patients entering the hospital in the course of the first involvement of the joints eighty-one, or 19.3 per cent, presented an old valvular lesion. Analysis of the author's material indicates a small percentage of involvement of the mitral valve alone (from 3 to 4 per cent) as well as a relatively rare incidence of isolated lesions of the aortic valves. The incidence of combined valvular lesions amounted to 40 per cent. This rate increases with each new flare-up of the joints. The author stresses the regular development of myocarditis in association with rheumatism as well as the fact that the recurring specific myocarditis frequently is the determining factor in the fate of rheumatic patients by provoking or increasing the cardiac insufficiency.

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Influence of Untreated (Latent) Syphilis on Course of Pregnancy in Chinese Women. L. P. Kian.—p. 177.
*Tetany and Pregnancy. J. C. Verhage.—p. 201.
Transplantation of Uterine Mucosa. M. A. van Bouwdijk Bastiaanse. —p. 232.
Congenital Tuberculosis in Man and Animals. L. P. H. J. de Vink.—p. 243.
Position of Fetus in Uterus. D. G. Wesselink.—p. 252.

Tetany and Pregnancy.—According to Verhage, tetany is comparatively rare during pregnancy; at any rate this is the case if the atypical forms, without spontaneous convulsions, are disregarded. He reports two cases of tetany in pregnant women. In the first woman the tetany developed following a strumectomy that was performed eight days after the birth of the woman's third child. After this the woman became entirely well. She had no symptoms of tetany until she became pregnant. These symptoms subsided after the pregnancy was terminated but recurred again three years later when the woman became pregnant once more. The second woman developed tetany during pregnancy although she had not undergone an operation. However, the anamnesis disclosed that she had had symptoms of tetany ten years before, about six months before the menarche. In both cases the authors succeeded in counteracting the symptoms and in increasing the calcium content by means of parathyroid extract. However, normal calcium values were not reached before delivery. When after delivery the same therapy was continued, the calcium content increased further. In both instances the calcium content of the blood was considerably higher in the child than in the mother. However, when the calcium content of the maternal blood was extremely low, that of the blood of the child was likewise below normal. The anemia which accompanied the tetany yielded to treatment with reduced iron and, as the anemia improved, the calcium content of the blood increased. In a general discussion of the problem of tetany in pregnancy the author takes up the symptomatology, pathogenesis, prognosis and therapy. He shows that tetany must be regarded as a serious complication during pregnancy and during the puerperal period, although, thanks to the new forms of treatment (parathyroid extract and dihydrotachysterol), its prognosis has greatly improved in recent years.

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*Clinical and Experimental Studies on Intestinal Paralysis in Extra-Abdominal Traumatic Injury to the Trunk. K. Lehmann.—p. 439.
Amputation Neuroma on Nerves of Fingers. H. Josefsson.—p. 460.
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Retroperitoneal Ileocecum, a Peculiar Position of Appendix Observed During Operation. S. Grettve.—p. 541.
Incidence of Thrombo-Embolism After Operations for Hernia. B. Bergqvist.—p. 555.

Intestinal Paralysis in Extra-Abdominal Traumatic Injury.—According to Lehmann, traumatic injury involving the abdomen directly, especially with injury to intra-abdominal organs or hemorrhage, may produce intestinal paralysis. It is more difficult, however, to explain how extra-abdominal traumatic injury which is limited to the back, chest or pelvis can give rise to typical ileus. Some cases of serious paralytic ileus in traumatic injury to the back, including one with fatal outcome, gave rise to the studies here presented. In order to get some idea of the frequency of this traumatic form of ileus, the author investigated a material of 497 cases of extra-abdominal traumatic injuries limited to the region of the back, chest, pelvis and kidney. In this number eleven were found to be associated with more or less pronounced paralytic ileus. One case terminated in death. On the basis of the postmortem observations in this case, of the localization of the trauma in other cases and of experimental studies, the author suggests that the intestinal paralysis is due to an inhibiting action on the intestinal musculature. This effect is exerted by the sympathetic, which in turn is impaired by the formation of a hematoma. In eight of the eleven reported cases the hematoma was localized in the region of the splanchnic nerves, more especially on their intrathoracic course.